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INDUSTRIAL STRATEGIES AND POLICIES IN DEVELOPING SOUTH, SOUTHEAST AND EAST ASIA: A REVIEW*/

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FOREWORD

Within its study programme on industrial development prospects in individual and groups of developing countries, the Regional and Country Studies Branch of UNIDO is giving particular attention to past and future industrial strategies and policies in developing countries.

This paper on industrial strategies and policies in developing south, southeast and east Asia, is intended to provide a first brief overview of the key features of strategies and policies for industrial development in these countries and to indicate related emerging issues and possible future directions. The paper is to serve national policy makers and international fora in assessing past developments and perceiving future options for industrialization in the region. The world economy is presently undergoing drastic changes and the developing countries are facing severe challenges to their industrialization. In this situation developing countries are reassessing their strategies and policies and searching for new approaches to enhance their industrial development. The paper may contribute to the current debate on these issues and may promote further research in this field.

The paper first presents an overview of past growth patterns in industry in the region as a whole and in countries in east and southeast Asia and in south Asia respectively. Against this background it is attempted to identify major constraints to these countries' industrial strategies in the recent past and major issues being considered by policymakers. Subsequently it is attempted to assess the emerging pattern of strategies for industrial development in the region in the 1980s.

Supporting data are provided in an annex. Due to limitations of the statistical data, the review had to be confined to about a dozen developing economies: in south Asia (Bangladesh, India, Pakistan and Sri Lanka) and in southeast and east Asia (Indonesia, Hong Kong, Republic of Korea, Malaysia, Philippines, Singapore and Thailand). The descriptive review of the

industrial strategies employed in the region, including various initiatives for their re-orientation, draws heavily on the work of the Ad Hoc Group of Ministers of Industry in Asia and the Pacific, under the auspices of the ESCAP/UNIDO Joint Industry Division.

I. OVERVIEW OF MANUFACTURING IN DEVELOPING SOUTH, SOUTHEAST, AND EAST ASIA DURING THE PAST DECADE

Industrialization has been the key sector in economic development in developing south, southeast, and east Asia over the past decade. Manufacturing value added per capita in the region as a whole grew 4.7 per cent from 1973 - 1982, at twice the average rate of 2.1 per cent for all developing countries (see Table 1 in the Statistical Annex)[1/]

Most countries in the region find themselves in a period of relatively rapid growth; indeed countries of east and southeast Asia are the fastest growing economies in the developing world. In literally all of the countries under review the growth rate in the industrial sector from 1970 to 1980 exceeded that of GDP; a gap ranging from 0.5 percentage points in Pakistan to 5.6 in Bangladesh; and from 0.3 percentage points in Singapore to 5.9 in the Republic of Korea.[2/]

Thus economic progress has been the result of a transformation in the structure of production activities, structures which traditionally have been dominated by the agricultural sector. The share of MVA in total GDP for south, southeast and east Asia increased from 12.8 per cent in 1963 to 18.9 per cent in 1980.[3/] During the last decade the share of MVA in GDP for the group of five ASEAN countries (Indonesia, Malaysia, the Philippines, Singapore

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1/ Although in the later half of the 1970s developing south, southeast and east Asia recorded an appreciable increase of 6.1 per cent per annum in MVA they still lagged behind the growth target of 8 per cent of the International Development Strategy of the UN Second Development Decade (DD2). [Ref. "Industrial Growth Performance and Restructuring in the Developing ESCAP Countries at the Outset of the 1980s", ESCAP/UNIDO Division of Industry, Human Settlements and Technology, January 1982.]

2/ IBRD, World Development Report, 1982.

3/ Table 1 of ID/WG.391/1, "Selected Statistical Indicators", prepared for the High-Level Expert Group Meeting preparatory to UNIDO IV on Industrial Strategies and Policies for Developing Countries, Lima, 18-22 April 1983.

and Thailand) steadily increased from 14.4 per cent in 1970 to 16.3 per cent in 1975, and to 18.3 per cent in 1980 (in constant 1975 prices). This growth has also been significant, although slower, in south Asia where MVA in Bangladesh, India, Pakistan and Sri Lanka rose from 14.7 per cent of GDP in 1970 to 15.4 per cent in 1975, and to 16.4 per cent in 1980 (see Table 2 in the Statistical Annex for individual country data).

Moreover, absolute growth of the industrial sector has been accompanied by significant structural changes towards increased local processing and manufacture of final products. This trend is clearly reflected in the growth of exports of manufactures, the increase in production of intermediate and capital goods and the adoption of more advanced technologies.

Thus, as the data given in Table 6 in the Statistical Annex shows, the portion of processed goods exported for final use out of total exports increased greatly in all of the countries under study. To cite only the most extreme examples, out of total exports the share of manufactures exported for final use jumped from less than 0.8 to 31.2 per cent in Sri Lanka, from 24.4 to 53.8 per cent in Pakistan, and from 25.0 to 41.4 per cent in Thailand, between 1970 and 1981.

Moreover as the industrialization process has deepened there has been an increasing demand for the intermediate and capital goods needed for further expansion. Several of the developing countries in Asia have made major efforts to expand their intermediate and capital goods sector, efforts which are reflected in a rising share of these sectors relative to total manufacturing. The growth of MVA in the capital goods sector (ISIC-groups 382, 383 and 384 - machinery and transport equipment) over the past decade is shown in Table A for selected countries in developing Asia.

In addition to providing inputs for the manufacturing sector in general, the capital goods sector has been relied upon to generate new technologies and skills. The capital goods, and other modern industries, have provided a dynamic link with the mainstream of technological innovations. By providing more efficient machinery and equipment this sector has helped raise productivity levels in a wide range of other industries.

Table A. Manufacturing value added (MVA) of ISIC-groups 382, 383 and 384 (machinery and transport equipment), 1970, 1975 and 1980
(in 1000 US $, at constant 1975 prices)

	1970	1975	1981
Bangladesh	...	10,600	32,186
India	1,844,181	2,187,300	3,149,934
Indonesia	64,203	159,300	335,938
Hong Kong	292,420	423,900	569,523 (1976)
Korea, Republic of	115,324	519,203	1,593,632 (1980)
Malaysia (Western part only)	119,274	190,100	335,947 (1980)
Pakistan	75,637	140,600	138,994 (1976)
Philippines	232,743	302,000	464,321
Singapore	188,491	426,000	1,385,528
Sri Lanka	27,078	28,700	...
Thailand	88,384	196,900	...

Source: Data extracted from tables 7/1 - 7/11 in the Statistical Annex.

Policies, growth rates in manufactures, and attainment of development objectives have of course varied between countries and sub-regions of developing Asia. The developing countries in east and southeast Asia, having achieved an exceptionally high growth rate during the 1970s, were able to adjust to the difficult closing years of the decade better perhaps than any other developing region. It does not follow, however, that important development goals were automatically achieved, as the continuing unemployment problem demonstrates.1/

The explanation of this adjustment ability lies in several factors. First, the flows of intra-regional trade investment are becoming more

1/ The exception is Singapore, whose labour supply shortage presents a different set of challenges to continued industrial development.

significant and thus making the developing east and southeast Asian countries less vulnerable to worldwide economic uncertainties. Still however, some 60 per cent of the exports of the region are directed to the markets of the industrialized countries, including Japan.

Another contributing factor is that those of the developing east and southeast Asian countries which are without oil resources have made considerable progress in lessening their dependence on petroleum imports by reducing energy consumption and by accelerating exploitation of their natural gas, coal, nuclear, hydroelectic and geothermal power sources.

Even more basic to sustaining economic development than trade and energy policies may have been the underlying continuity in economic planning and policy-making, a continuity in turn promoted by a relative degree of political stability. While continuing to rely on export-led industrialization strategies these countries have placed increasing emphasis on building up indigenous capabilities to initiate and sustain industrial programmes; on strengthening investment, training, and research institutions; and on involving wide sectors of societies in the benefits of economic growth. These domestic strengths enable these countries to adjust more quickly to new markets, technologies or competition. Although it is evident that the worldwide recession has severely affected the countries in east and southeast Asia, it has also presented an impetus to increase intra-regional trade and investment to bolster local capabilities. Thus, these countries may emerge from the recession with more diversified, better-balanced economies and therefore be better prepared to take advantage of renewed consumer demand in the industrialized countries.

The developing countries of south Asia, in comparison with their east and southeast Asian neighbours, have had a relatively weaker industrial performance. The growth in MVA for the region averaged 5.0 per cent from 1976 to 1980, compared for instance, with 9.7 per cent for the ASEAN countries. Of particular concern is the limited effect that the industrial growth has had towards alleviating the increasingly severe unemployment in both urban and rural areas.

Early development plans of the south Asian countries pointed to industrialization not only as an engine for overall growth in the economy but as a major means of absorbing the large supply of labour in both the rural and urban sector. Significant increases in industrial output have been achieved without the anticipated corresponding increase in demand for labour inputs as a consequence of high productivity growth in capital-intensive technologies and the weak linkages between the large- and the small-scale industrial sectors.[1/]. In India for instance, employment in the manufacturing sector from 1979 to 1981 was estimated to have increased by only 3.2 per cent (from 5.85 million to 6.04 million). The issue of unemployment, therefore, remains a key factor of industrialization strategies in south Asia.

It has been estimated that a unit of investment in the small-scale sector creates 5.3 times as much employment as in the large-scale sector.[2/] As a complement to the large-scale, modern sector, the employment potential of the small-scale sector in villages and rural areas is now receiving increased attention in government policies. Promoting small industries is emphasized in India's current development plan as a part of the overall strategy of integrated rural development. Thus lessening the dependence of industrialization on capital-intensive designs, built-up urban areas, and large-scale enterprises are interrelated factors of emerging strategies to increase the development benefits of industrial growth.[3/]

Country-by-country statistics for MVA and employment by 3-digit ISIC-goupings are provided in Tables 7/1 - 7/11 in the Statistical Annex. Due to the limited availability of data only the following economies in the region

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1/ "Development strategies for the 1980s in south Asia", ST/ESCAP/154.

2/ "Review of recent industrial development and its outlook - India". Paper prepared for the ESCAP Committee on Industry by the Government of India, September 1982.

3/ Although the coverage of this report does not extend to the Peoples Republic of China, it is interesting to note for comparison purposes that China is re-orienting its production structure to reduce reliance on capital-intensive heavy industries and to promote rural small-scale activites. Primary importance is to be given to the development of the consumer goods industry. (Contribution by PRC to UNIDO's third monitoring exercise, 1981/82, on "Progress made towards accelerating industrializaion in developing countries".)

have been included: Bangladesh, India, Indonesia, Hong Kong, the Republic of Korea, Malaysia, the Philippines, Singapore, Sri Lanka, and Thailand.

The worldwide economic recession in the 1970s has taken a high toll in slowed economic growth and industrialization in the developing countries in Asia. For the more rapidly industrializing countries of southeast and east Asia, the contraction of markets for their manufactured products has necessitated a search for innovative approaches to polices and planning. These may encompass both national endeavours, in the utilization of raw materials and strengthening of R and D capabilities; and intra-regional efforts, in technical co-operation and joint financing of large-scale industries to serve regional markets. For most of the countries of the Indian sub-continent, higher-priced imports of intermediate goods and increased costs of commercial borrowing, coupled with more limited availability of grants and concessional lending, have refocused national planning towards a strengthened endogenous development - in order to accrue the maximum benefits possible for development from whatever industrial growth can be achieved.

II. INDUSTRIAL DEVELOPMENT STRATEGIES: MAJOR POLICIES AND CONSTRAINTS

Analyzing the principal components of the patterns of industrial development of the countries in south, southeast and east Asia begins with placing their policies within the context of overall development goals and along the continuum of import-substitution and export-led growth strategies. The fast pace of changes in the global economic environment and its effects on economic development had led countries to reassess their policy implementation measures - and the underpinning industrial development strategies.

A. Import-substitution and export-led growth

From the outset it must be emphasized that import-substitution and export promotion cannot be viewed as mutually exclusive policy strategies in developing Asia. The real issue has been the relative contributions of import-substitution and increased exports to overall industrial growth. The balance of policy priorities varies between countries and over time. However, it has been observed, the contribution of import-substitution to industrial growth has often been around 40 per cent even in countries with a strong export orientation.[1/]

Most developing south, southeast and east Asian countries turned to import substitution as a strategy for industrial development in the 1950s and 1960s. A major concern of this strategy is to develop the domestic market. It was recognized that expansion of local demand would critically affect their ability to attain economies of scale in their production. Development of industry therefore required the expansion of effective demand, i.e. by incorporating subsistence-farming and other marginalized population groups into the commercial economy. The industrial sector in turn was expected to also provide the means of expanding domestic markets by increasing employment.

Governments used a variety of policies to promote the import-substitution strategy. Large-scale public investment in infrastructure and heavy industry

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1/ "Regional development strategy for the 1980s". E/ESCAP/L.45, 28 December 1980.

was undertaken in connexion with promoting investment from the private sector. Tariff barriers were raised to protect new industries from foreign competition. Laws requiring the inclusion of training and use of local raw materials were instituted for foreign investments. Schedules requiring an increasing content of locally produced manufacturing components were drawn up for final-product industries.

The effects of these and other policies differed widely between countries. Those with small populations were more prone to the dangers of building over-capacity in industries. In countries with massive populations, curtailments of imports of consumption goods had to be preceeded by local production capabilities. Restrictions, by quota or duties levied, on importing final products necessitated importation of machinery, equipment or raw materials. Protecting local firms from international competition fostered domestic investment but also stymied further growth in those industries as producers faced no market imperatives to adapt to more efficient technologies.[1/]

Thus the successes of import-substitution policies in turn created new dilemmas to develoment strategies. On the one hand import demands of consumers were often replaced by those of producers, which hamstrung efforts to improve balances of payments. On the other, the counted-on ability of local industry to meet future consumption demand better, or cheaper, than foreign suppliers was threatened by a built-in intransigence to future modernization.

The predominance of import-substitution policies began to decline in the late 1960s and early 1970s. This period marked a very distinct shift to export strategies in many countries during a period of general trade liberalization and expansion. The economies which were in the forefront of this strategic shift were those with relatively small populations, namely, Hong Kong, Singapore, and the Republic of Korea. Somewhat later, Malaysia, Thailand, the Philippines and Sri Lanka also initiated active pursuit of the strategy.

1/ Bela Balassa, "The process of industrial development and alternative development strategies", World Bank, October 1980.

The essential question was to what extent opening up the economy to international trade would accelerate industrialization. In the case of Singapore, the Republic of Korea and Hong Kong, it is very clear that industrial development was based to a major extent on international market possibilities throughout the world. International trade, as contrasted with domestic demand, thus became the engine for growth of the manufacturing industry.

A basic advantage of the export-led strategy is that it encourages countries to develop industries in which they have some comparative advantage (human resources, raw materials, know-how, etc.) and therefore are able to produce more efficiently than other countries and offer products at lower prices. Competition with other producers for both international and domestic markets, induced by lifting restrictions on imports, built in incentives to adapt to, and even to develop, more efficient technologies.

Basing industrial growth on the uncertainties of the international market and economic cycles has also entailed risks to industrial growth. These risks have been abruptly brought home to southeast and east Asian countries during the recent worldwide recession and the subsequent protectionist policies of the industrialized countries.

B. The role of government in directing industrial development

The strategy generally pursued now by the countries in the region is thus a mixture of import-substitution, export growth, and domestic resource-utilization promotion polices. External linkages for industrial growth are enhanced wherever possible, both through the export of manufactured products and the more efficient utilization of foreign resources, such as capital, know-how and technology. Such a balancing act requires an active role by governments in forcing the pace of industrialization and directing its pattern. Most of the countries in south, southeast, and east Asia having mixed economies, governments are involved in development planning, directing investments in the private sector, and as entrepreneurs in the public sector.

At the centre of current reassessments is an evaluation of the role of government planning. The worthwhileness of formulating national industrial development plans and programms has become increasingly apparent as valuable instruments for fostering and directing growth. Having evolved through trial and error from rather rigid structures of planning, national plans were more and more regarded during the 1970s as flexible, forward-moving sets of policies which would be continually modified as emerging events required. The national plan is increasingly relied upon to promote a perception of the interrelationships of many factors over a period of time and to outline possible means for progressing, through a set of rationally co-ordinated policies, toward changing objectives. Common characteristics to successful national plans include defining objectives clearly and according to underlying priorities, employing the entire breadth of policy tools available, and continuing re-evaluation of programmes according to changing patterns in comparative advantages.

The establishment of public sector industries has been used in the region as a means of directing investments to industrial sub-sectors which were regarded as key areas and for which market forces did not seem to be able to generate the magnitude of resources and commitment required for adequate investment. Today public sector enterprises enjoy a dominant position in basic industrial sectors in many of the countries. They have been used to varying extents as instruments for implementing industrial policies, including fostering inter-sectoral linkages; pioneering the development of backward regions; and nurturing ancillary industrial units - particularly for peripheral processes.

Effective management of public sector industries, and success in meeting development objectives, has depended to a very large extent on the clarity of specific obligations and responsibilities of individual enterprises and, moreover, a prioritization of their goals. Recent studies[1/] on the role of

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1/ Ref. Report on the UNIDO expert group meeting on the changing role and function of the public industrial sector in development, Vienna, October 1981 (UNIDO/IS.386) and various country level analyses prepared in that connexion.

public sector industrial enterprises in Asian developing countries indicate that there is a further need to clarify the financial and commercial goals of the enterprises vis-à-vis the socio-economic goals, with particular attention given to the comparative roles of the public and private sectors in development strategies and the areas in which they can co-operate usefully.

Table B. Selected countries east and south Asia:
The share of public sector in total manufacturing (in percent)[a/]

Country	Year	Share of public sector in			
		Value added	Output	Investment	Employment
Bangladesh	1973/74	61.8		90.8	
	1977/78	70.6		80.8	
Burma	1977/78		46.4		17.2
India	1966/67			61.7	17.2
	1975/76			60.9	
	1979		19.0		
Korea, Rep. of	1963	15.3			
	1972	15.1			
Pakistan[b/]	1970	4.5	3.0	11.4	8.0
	1975	84.0	40.0	42.6	22.0
	1980		70.7		
Thailand	1977	8.2	4.1		
	1979	6.5	3.5		

a/ Years and indicators vary according to availability of data.

b/ Mass nationalization policy undertaken in 1977.

Source: UNIDO, "The changing role of the public industrial sector indevelopment", UNIDO/IS.386, 3 June 1983.

Direct state involvement on a joint venture basis with the private sector in major industrial projects requiring large volumes of investment has become a practical arrangement in many cases. In Thailand, for instance, the government is adopting such a corporate approach to financing new heavy

industrial projects in the fields of fertilizers, petrochemicals and natural gas in the context of the Eastern Seabord development. Schemes like these may be structured so that the government holds a large, but less than majority, share and thus maintains control over policy matters while leaving management in the hands of private investors.

Expansion of infrastructure (physical as well as institutional) has perhaps been the most concrete task facing the Asian governments in expanding the base of industrial development within their countries. Because the lack of infrastructure both deters industrial growth (absence of requisite transport, communication, energy, etc.) and is itself a result of underdevelopment (high investment costs relative to returns in limited or unstable markets) governments must take a leadership role in this area. Although this responsibility is generally acknowledged, governments have been constrained in allocating even the diminishing funds available to them for infrastructure to industry. Moreover, the development of infrastructure has rarely been guided by specific demands of the production sectors.

It appears that one factor inhibiting the adequate allocation of national resources to the development of infrastructure has sometimes been the strict application of criteria of commercial viability, which do not include adequate accounting of the socio-economic benefits of the economic activity resulting from infrastructure development. Attempts have been made by some of the Asian countries to formulate differentiated criteria of viability for infrastructure development projects and to connect infrastructure projects more closely to manufacturing and other production activities.

C. Policy issues

Beyond these basic methods of catalyzing industrial growth, governments are pursuing an array of policies in their efforts to broaden the base of industrialization and extend its benefits to larger portions of their populations. Several of these policies are discussed below.

(i) Geographical dispersal of industry

The crux of the problem with the usual location pattern of industries is the conflict between business needs (skilled labour pool, transport, close communications between firms and with government agencies) and social needs (rural and village employment, development of resources and infrastructure in the hinterland). During the 1970s the need for a balanced spacial dispersal of industry was increasingly recognized in the developing countries in Asia, not only to improve the quality of the urban environment but also to spread industrialization over a wider base, taking advantage of the resource endowment in the country. The challenge to policymakers has been to redirect industrial expansion without reducing overall growth. Spacial disperal was sought not so much through restrictions on the expansion of industrial activity in the metropolitan areas as through providing improved conditions of industrial development in the non-metropolitan areas.

Some countries, such as Indonesia, have developed selected "growth centres" - providing a complete range of infrastructure and support services. The necessity to provide a "critical mass" of services in such facilities has been recognized and the temptation to develop, or halfway develop, a large number of centres has been avoided.

India initiated such a programme in the late 1970s. "Nucleus plants" were established to stimulate ancillary industries in districts identified as industrially backward.[1/] The nucleus plants are designed to assemble the products of feeder units within their orbits, to produce inputs needed by the smaller units, and to make adequate marketing arrangements for them. Their twin objectives are to disperse investment and employment and to provide up-graded technologies to the smaller units.

The Pakistan government provides incentives for establishing industries in less developed areas. The incentive package includes exemption from custom duties on machinery imported for installation in less developed areas and tax

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1/ Contribution by India to the UNIDO third monitoring exercise, (1981/82) on "Progress made towards accelerating industrialization in developing countries".

exemptions and credits on investment in such areas. Pakistan is also attempting to direct more of the available resources for public investment toward housing and public utilities in towns.

Thailand and the Philippines both support industrial estates in various regions, including the provision of facilities and tax incentives for investments.

(ii) Small-scale industries

It was noted by the region's Ministers of Industry meeting at ESCAP in November 1977, that despite various policy pronouncements, the small-scale units continued to suffer from severe handicaps in comparison with large units. Utmost emphasis, it was felt, should be laid on improving the viability, efficiency and productivity of small-scale industries and promotional measures should be designed accordingly. In particular, continuous attention and review was required of the promotional and incentives packages offered to the small-scale industries so as to ensure that they receive their requirements of machinery, raw materials and skilled manpower on fair financial terms. Attention was to be given to the importance of engineering and management consultancy services, particularly those relevant to the small-scale enterprises.

The "nucleus plants" and other strategies mentioned above for dispersing industrial activities also foster the growth of small-scale industries. One basic advantage of small-scale industries is the larger demand for labour relative to capital than is required in larger-scale industries.

The policies and measures in support of the development of small-scale industries pursued by Indonesia[1/] include:

1/ Contribution by Indonesia to the UNIDO third monitoring exercise, (1981/82) on "Progress made towards accelerating industrialization in developing countries".

- the required use of goods and services produced by small-scale industries for government procurement up to certain amounts:
- the development of more extensive patterns of sub-contracting:
- the drawing up of a list of products which are to be produced exclusively by the small-scale industries:
- the development of industrial estates and production centres for the small-scale industries.

The cite another example, as noted in the current Malaysia Plan (1981-85), the small-scale industries in the foundry and metal working sector in the country have increasingly been providing support services for such large-scale industries as electrical and non-electrical machinery and transport equipment industries.

Maintaining the vital contribution of the small-scale sector to the industrialization of the developing countries in Asia, it has been recognized, depends on their productivity and access and adaptability to technological advances. One way to encourage efficiency and modernization in the small-scale sector has been to strengthen its linkages with the larger and more modern industries.

(iii) Mutually reinforcing agricultural and industrial development

During the last decade in most Asian developing countries, increases in agricultural output accrued only marginally from increases in the land area under cultivation, while substantially from effects of industrial inputs (machines, fertilizers, pesticides). In fact, the achievements of the "green revolution" in some of the Asian developing countries were calling for a matching progress in the industrial sector. An important dimension to the intersectoral linkages has been the various institutional measures which have been taken in developing Asian countries, such as establishing marketing boards, agro-industrial complexes and co-operatives, and granting preferential finance to industries absorbing agricultural products or providing farm implements.

It has also been evident in many countries that as a consequence of successful development by small farmers, a significant increase in demand has been generated for various consumer goods, building materials, etc. This

demand has contributed most substantially to the development of domestic industries that enjoy "natural" protection from imports in the form of transportation costs.

Where industrial processing oriented to export markets has moved away from absorbing agricultural output, opportunities for stimulating demand in the agricultural sector have been weakened. Likewise, where large sectors of the rural population are engaged in only subsistence-level farming, the potential domestic market for manufactured goods is diminished. In some countries where agricultural development ranks the highest priority, such as Bangladesh, governmental strategies in the industrial sector have been designed with these inter-sectoral links uppermost in mind.

A few examples of countries' policies illustrate the efforts to intertwine demand for labour and agricultural products with demand for farm implements and mass consumption goods.

Increasing output of industrial products based on indigenous raw materials, both agricultural and mineral, ranks second, behind producer goods, in Pakistan's industrialization efforts. A total of 35 per cent of investment in the Fifth Plan is slated for agro-related industries, a large part of which is to go to small industries in rural areas for such endeavours as rice husking, cotton ginning, wheat milling, etc. The development of agro-industries is designed to serve the overall objective of expanding exports.

In the Philippines, priority in investment is accorded to various agro-industries, including food production, foodgrain processing, and production of hybrid seeds. Small-scale enterprises in the food processing sector are being developed, particularly mini-dairies and meat processing.

(iv) Employment effect of technology choices

The size of the unemployment problem in most of Asian developing countries has been such that a significant impact on it could be expected only through an all-sector approach and not by placing excessive demand on infant industrial sectors. As an illustration of the magnitude, the Philippines

would need a 24.5 per cent annual increase in the rate of growth of manufacturing, and India a 22.1 per cent growth, just to absorb future increases in the labour force.[1/] These growth rates do not include absorption capacity of currently unemployed or underemployed persons.

Maximization of the direct employment benefit of industry is increasingly being sought through critical analysis of technology choices. Assessing the opportunities for absorption of labour has become an important aspect in the overall evaluation of technologies - while bearing in mind that employment imperatives should not eclipse analysis of other factors, such as effects on productivity, quality of products and the state of modernization.

It has been noted that there are several sectors - agricultural, construction, transportation etc. - which normally provide scope for alternative, more labour-intensive technologies. Industrial production technologies seem generally to leave less scope for choosing labour-intensive production without foregoing restraint in product costs and resource consumption levels. The experiences of the Asian countries point out a limited range for choice, within currently known technologies, between labour and capital in large-scale processing industries, like iron and steel, basic chemicals, fertilizers and paper and pulp. Peripheral operations in these industries and production in other sectors such as metal working and textiles have permitted more flexibility in trading off labour/capital ratios.[2/]

In order to enhance the direct employment potential of the industrial sector, some Asian countries have found it desirable to direct their policies at those industrial sectors promoting the largest degree of flexibility in

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1/ "Strenthening the sinews of industrialization", IHT/MI/AG.2/2, ESCAP, 8 May 1981.

2/ See i.a. Paul Beckerman, "Some arguments for (moderately) capital intensive development even in labour-abundant nations", World Development, Vol. 6, 1981.

labour/capital trade-offs. Efforts have been made to examine the specific industrial operations and study the possibilities of replacing capital by labour, ensuring however that the substitution does not affect productivity beyond a reasonable limit of tolerance and does not create a permanent resistance to technical change.

(v) Manufacturing capabilities and skills

As mentioned above, employment-generating aspects of technology choices cannot be considered in isolation of other policies also affected by the choice and acquisition of technology. The common objective of these various policies can be summarized as raising manufacturing capabilities.[1/] The term "capabilities" is used not in the narrow sense of hardware, machinery and equipment but in the broader sense of encompassing the entire wherewithal needed for operating a production system. It includes technology and skills, infrastructure, the capability to conceive and implement industrial projects, stability in energy supplies, etc. To acquire such a range of capabilities requires countries to take measures across a wide front, in many cases guided by national science and technology plans or comprehensive policy packages.

Those countries in south, southeast and east Asia which had a headstart in building indigenous industrial development capabilities were the best prepared to weather the recent economic crisis. The industrialization effort of these countries had been preceded and accompanied by the development of infrastructure, transport and communications; the generation of skills; and the development of indigenous basic industries. If these countries were able to respond to the opportunities provided by foreign trade or by the availability of foreign resources and technology, it was largely on the strength of the capabilities which they had developed.

The manufacturing capabilities of the developing countries in Asia (as elsewhere) have depended on their command of industrial technology. Technological capabilities encompass not only hardware and skills needed for

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1/ ESCAP, "Strengthening the sinews of industrialization", IHT/MI/AG.2/2, 8 May 1981.

the production but also the capabilities to choose, acquire and adapt technologies. The acquisition of industrial technology in most of the developing Asian countries has been related to foreign investment; only in a few cases has technology been bought outright and in fewer still has it been the result of indigenous innovation. Asian developing countries have seen a need, therefore, to develop capabilities for choosing and acquiring the technologies most appropriate to their needs and on the best available terms. At the same time, the countries continue to develop the necessary skills required for unpackaging technologies and for adapting them to local conditions.

The ultimate objective, however, is to develop indigenous research and development activities through which designs and processes may be developed to contemporary standards of productivity and product specification. In most of the Asian developing countries such activities are well under way. Furthermore, it is recognized that successful development of technological capabilities requires a dynamic production environment. Commercial interests must be activated for the adoption of new and efficient technologies. Without such active participation on the part of industry, research and development efforts would remain exogenous to the process of development. Government policies to facilitate this participation include market incentives to innovators and enterprises adopting "homegrown" inventions or production processes.

It has also been recognized that in developing Asia (as in other developing regions) the manufacturing system has a dual structure. One part of it consists of modern manufacturing while the other relies on traditional crafts and outmoded systems of production. Furthermore, having originally developed under import-substitution regimes, many Asian countries find that a large part of the industrial sector has been separated from the international mainstream of technological advance, while a small part, established for maintaining exports, has incorporated technologies which enable it to produce goods of an internationally acceptable quality. The utmost importance has been accorded to raising the level of efficiency of the import-substitution sector, to move it away from outdated technology and obsolescence of plant and

machinery which adversely affect cost efficiencies and competitiveness.[1/]

The development of capabilities and skills in the manufacturing sector seems to be the key issue of the 1980s for industrial development strategies. The importance, therefore, of successful governmental policies in regulating foreign investment to increase human and material resource utilization, developing institutions for scientific research and technical training, fostering commercial demand for new technologies, and intermediating between the traditional sector and modern technology flows cannot be overestimated.

(vi) Export promotion and international industrial co-operation

The outward-orientation industrial strategy, generally followed by the developing east and southeast Asian countries, has been associated with relatively high domestic savings ratios as well as a large volume of foreign investments. Policies to stimulate savings have assumed a higher priority due to the liquidity shortages and high interest rates in international capital markets, and reduced foreign exchange earnings from exports to the industrialized countries. Some figures for domestic savings and foreign investment are given in Table C.

Generally high domestic savings rates notwithstanding, export earnings and the inflow of foreign capital are crucial for providing the hard currencies required for the import of materials and machinery. Of crucial importance to sustaining financial inflows has been the ability to penetrate and maintain international markets. So far, foreign investors have often played the most effective part in developing and securing access to the export markets. They have performed the role of innovating entrepreneurship, to be followed later by local enterpreneurs having gained experience working with the international market. Breaking out from the confines of the domestic market and into the international market has posed many difficulties. Different specifications, standards, designs and product qualities are

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1/ See i.a. contribution by Pakistan to the UNIDO third monitoring exercise (1981/82) on "Progress made in accelerating industrialization in developing countries".

Table C. Domestic savings and foreign investment in industry, selected countries

Country	Year	Domestic savings % of GDP	Foreign investment % of toal investment in manufacturing
Singapore	1975	...	72[a/]
	1978	29.6	76[a/]
	1979	30.7	79[a/]
	1980	29.6	80[a/]
Indonesia	1978	6.9	16.8
	1979	8.5	54.5
	1980	...	19.8
Pakistan	1975-76	...	31.9
	1977-78	7.8	...
	1979-80	...	28.6
	1980-81	...	50.7
	1982-83	12.5[a/]	
Thailand	1975	...	12.8
	1978	23.8	20.0
	1979	23.1	4.6
	1980	21.3	15.4
Sri Lanka	1978	14.7	...
	1979	13.3	...
	1980	13.4	...

a/ Estimates.

Source: Contributions from countries to the UNIDO third monitoring exercise (1981/82) on "Progress made in accelerating industrialization in developing countries".

required; different risks are involved; financing is handled differently. Collaboration with foreign partners has been an important means of overcoming such difficulties.

In another approach to developing national capabilities for international marketing, some southeast Asian countries have been looking to the institutional and organizational set-up in Japan and the Republic of Korea. The concept of the Japanese sogo shosha trading house is now being furthered in several southeast Asian countries attempting to export a wide array of

manufactured goods to the world markets. A major objective of trading firms is to establish a sense of support between the government/bureaucratic sector and the private industrial sector.[1/]

Although foreign firms continue to be of great importance to the industrial development of southeast Asian countries, and play a critical role in high-technology sectors and marketing, large national firms and groups, private- and state-owned, have emerged as well and are playing an ever-increasing role in industrial innovation and trade. Firms from the developing countries are themselves going multinational. Hong Kong, the Republic of Korea, and India all have extensive overseas investments. Governments are also being increasingly more selective in permitting foreign investment. For example, labour-intensive assembly operations are discouraged in the Republic of Korea and Singapore in an effort to upgrade the technical sophistication of their industry. Most of the Asian developing countries have shown a preference for joint ventures and have used various instruments to forge linkages between domestic and foreign firms.

Policy tools available to governments for stimulating savings and investments include monetary management, strengthening local finance institutions, and promoting a stable, inviting investment climate. The following examples of the current trends illustrate these policies. The envisaged economic reforms for 1983 in the Philippines include revision of the investment incentive package, and development of new export-product priority areas. In Thailand the government is concentrating attention on attracting foreign investments to export market sectors for Thai products and at improving overall productivity within the context of restructuring the country's industry. In the Republic of Korea eligibility for direct investment has been expanded under the new policy to liberalize foreign investment, making it possible for foreign investors to hold an equity share of up to 100 per cent in selected industries. Eventually the government will adopt a negative list system whereby direct investment applications will be automatically approved, except in a very few cases. In Sri Lanka, although the government is maintaining its general policy direction towards attracting

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1/ J. Panglaykim, "Structural changes in industrialized Asia-Pacific. An opportunity for Indonesia". Contemporary Southeast Asia, December 1980.

foreign inputs to manufacturing, investment policies may become increasingly selective and geared towards long-term development goals. The very attractive terms currently offered to investors became necessary when Sri Lanka was trying to establish itself as an attractive foreign investment site. It can now afford to be more selective, both about the kind of investment it wants, and the terms it is prepared to offer. Foreign investment is sought in Indonesia, in sub-sectors where present production does not meet domestic demand and where export prospects exist - taking into account community interests and the growth of national companies. Foreign investments are accepted on condition that they provide extensive job opportunities; make possible the transfer of skill and technology to the Indonesian people within a short period of time; preserve the equilibrium of ecological quality; and support national development aims and national economic growth.

(vii) Export processing zones

The early export processing zones (EPZs) in Asia were established in the late 1960s in the Republic of Korea, the island of Taiwan and, somewhat later, in the Philippines and Malaysia. Hong Kong and Singapore provided similar environments. Multinational investment was attracted by the abundant availability of low-cost and industrious labour and increased rapidly. Labour costs in these original host nations have inescapably crept upwards and some of the "footloose" electronics, garments and other typical investors in EPZs are now establishing themselves elsewhere, inter alia, in the south Asian countries, Indonesia and China. Moreover, the past decade has seen the rise of Asian multinationals which are looking beyond their own borders for investment sites with supplies of low-cost labour. Despite recent advances in semi-conductor technology and movements towards more automated, skill-intensive production in their home plants, investors from developed countries are continuing to seek out EPZs for low-cost labour in assembly processes of production.

The more advanced developing countries of Asia which have, in the context of EPZs, lost their low-cost competitive edge to other developing countries are looking for higher-skill investments, such as precision engineering. Hong Kong and Singapore are linking up with EPZ developments in neighbouring areas of large labour reservoirs - China's Shenzhen and Indonesia's Batam Island.

In such "complementary" relationships, Hong Kong and Singapore will still provide important services ranging from marketing and shipping to finance, while the Chinese and Indonesian EPZs can generate employment for their labour force.

Only in rare instances, such as Singapore's ship and oil rig building industry, have technology transfers from EPZs to the economy as a whole been extensive. In general, the EPZs have been not only physically but also economically isolated and the impact on the host country economy has often been elusive. Production patterns in the zones have been highly volatile, making layoffs and rehirings frequent and unpredictable. Besides the generation of employment, another argument for their establishment had been their contribution to foreign exchange earnings. In reality, however, with the expensive outlays on capital imports for infrastructure and subsidized services, tax holidays, duty exemptions and profit repatriation, the net earnings from the zones do not seem to have been great.

As a general comment it may be stated that the nature and extent of the linkages between industrial activities in the zones and activities in the domestic economy has been a key issue in their development. The more extensive these linkages become the more likely it is that the zones can generate longer term benefits. On the other hand, if these linkages remain limited it is unlikely that the zones can generate the longer terms spin-offs required for a catalytic role in spurring industrial growth.[1/]

1/ Ref. UNIDO, "Export processing zones in developing countries", UNIDO/ICIS.176, dated 18 August 1980. See also "Economic and social survey of Asia and the Pacific 1982", Box II.13: "The employment contribution of EPZs".

III. EMERGING STRATEGY ISSUES

Past industrial development in south, southeast, and east Asia has been impressive, as documented in Chapter I above. In looking towards the latter half of the 1980s however, it seems highly questionable that a continuation of the same industrialization patterns will be able to maintain industrial growth in east and southeast Asia and accelerate it rapidly in south Asia. New elements in the international economy and intransigence of internal constraints require the formulation and implementation of new strategies. This chapter attempts to single out some key issues in this search for new directions and policy tools. Emphasis is given to sub-sectoral priorities, structural adjustment, and regional co-operation.

A. Fundamental challenges

There are two underlying themes in the emerging strategic issues of industrialization in developing Asia. First, the priority of strategies to broaden industrial growth is the key to harmonizing and co-ordinating the multiplicity, and seemingly contradictory nature, of policy objectives. The goal is to make industry more directly relevant to improving the living standards of the masses and to create powerful incentives for industrial expansion out of their unmet needs. Second, the goal to achieve greater international competitiveness for locally manufactured products, regardless of their destination in external or domestic markets, is the touchstone on which production decision-making is being decided. The essence of this ambitious and fundamental goal is to provide a solid indigenous launchpad for initiating and achieving industrial growth.

(i) Broadening industrial growth

A basic issue at the forefront of emerging strategies is the reconciliation of economic growth and social justice (equity) goals. In the future more attention is expected to focus on the basic aim of raising the productivity and consumption standards of the vast masses of the poor. The typical pattern of industrial development found manufacturing concentrated in metropolitan areas with few linkages to other economic sectors, particularly agriculture, or to the downstream manufacturing and processing activities.

This pattern of industrialization has not brought about real economic transformation. Evolving strategies now seek to enhance the role of industry in transmitting inputs for modernization thoughout developing societies, and to derive greater support for industrial expansion from increased domestic demand for manufactured goods.

To a large degree, the product mix has been decided by urban elites, for either direct consumption or for foreign exchange. Policies now pursued by many of the developing Asian countries attempt not only to accelerate overall demand for manufactured commodities but to shift the demand pattern. Thus the pace of industrialization will depend on the success of rural development policies: education, health, infrastructure; and will in turn contribute to these policies by providing employment and basic goods. The crucial emerging factor is that sheer growth in volume will not benefit the vast majority of populations unless governments undertake a campaign to direct it so. Growth in benefits, as distinguished from growth of output, requires shifts in product mixes and methods of production - particularly in the later towards labour-intensive manufacturing.

(ii) International competitiveness of industry

In further developing and expanding these strategic goals, increased attention is directed to integrating industrial development with national capacities and capabilities. Such integration is a prerequisite for both strengthening the domestic market and building up international market capabilities. Under the import-substitution approach, industry had developed within protected markets, which provided little incentive for innovation and improvements in productivity and product quality. At the same time, licensing and regulation of industries eliminated much competition within countries, giving rise to monopolies and oligopolies (in the private as well as the public sectors) which, in effect, had a vested interest in resisting technological change. A challenge facing these developing countries now is to neutralize such vested interests and create momentum for technological change.

Some countries have, in fact, achieved a measure of success towards such transition. Can the others do it in the 1980s? The number of difficulties seem discouraging: The balance-of-payments problems faced by most of the

developing countries in Asia continue to be stringent. Many industries striving towards greater efficiency still require protection (more than the developed countries need to protect theirs). Developing countries have to contend with the protective barriers raised by the developed countries against imports of their manufactures.

B. Directions for growth

The structural reforms which could prepare the developing countries for more open and competitive manufacturing systems also pose formidable problems. Modern industry in the developing countries tends to remain, even after the initial build-up phase, highly dependent on imports and attains only limited net export earnings. Faced with the dramatic challenges of the 1980s, the vulnerability of these industries and their adjustment problems are increasing. Consequently, the restructuring and consolidation of existing manufacturing capacities are in general being given priority over major expansion programmes in the developing Asian countries.

(i) Adjusting marketing and production capacities

The experience in developing Asia shows that, while past efforts by national governments towards sustained industrial development have generally met with a considerable degree of success, many of the countries are now facing increasing difficulties in maintaining their export markets. The consequent underutilization of capacity in the industrial sector has become a critical problem. Accelerating the growth of industrial production must be based on an effective combination of increasing domestic and external markets.

In producing for the domestic market, and particularly in the countries with large populations, renewed emphasis must be given to product choice, i.e. what can be produced from local materials, with labour-oriented technologies, and sold to the populace at large. The strategic approach requires policies to meet both economic and social objectives. This linkage must receive priority in production decision-making, within the constraints of comparative advantages and resource endowments.

A central challenge in promoting production for the domestic market is to create positive incentives for increased efficiency in manufacturing. The removal of protectionist barriers to competing imports provides an incentive to producers to adopt to more efficient production methods although it does not, by itself, facilitate such adoption. Production processes need to adopt to local consumption patterns, including adjusting to the demand for higher quality goods - which increases with rising incomes and widening economic development. Governments could direct their investment incentive policies toward production of middle-level consumer goods and encourage local manufactures to compete with foreign imports for this sector of demand. "Buy local" campaigns can be used to increase general awareness of local products' quality. In other words, orienting production to domestic markets must take a step-by-step approach - the successes of meeting one level of demand serving to make possible investments in producing more sophisticated or improved-quality products. Producing for local consumption must be converted into a means of improving international competitiveness.

It is worth noting that during recent recessionary years in the industrialized countries some of the developing countries in east and southeast Asia have successfully diversified the destinations of their exports away from the markets of the industrialized countries. The Republic of Korea, for example, which in 1972 sent more than 82 per cent of its exports to industrialized markets, has decreased that portion to about 60 per cent. Latin America and the Middle East have become significant markets for the newly industrializing countries of the region and it is likely that the share of Asian exports to these areas will continue to rise. Also, and above all, trade between the developing countries in east and southeast Asia is growing. Manufactured exports to Europe and the US might thus possibly decline in relative terms.

In order to maintain the momentum of industrial development in the southeast and east Asian countries which have made progress during the last decade based primarily on export development, concerted efforts must be made to eliminate obstacles to the flow of international trade in manufactured products. New approaches are being sought by those countries especially concerned. Indonesia is initiating a linking of exports with imports by way of counter-trade policy. Another development along similar lines is the

promotion of the concept of general trading companies, modelled after the Japanese sogo shosha or Korean trading companies, which command a world-wide network of buyers and sellers in a wide variety of commodities.

(ii) Engineering and capital goods

One way of jointly pursuing the social equity and international competitiveness goals is to enhance the backward-linking effects of progress in the development of the engineering and capital goods sector. A survey recently undertaken[1/] on the subject of comparative advantage available to the capital goods industry in the developing countries concluded that the conditions which weaken the comparative advantage were remedial, not inherent: low plant-wide productivity, limited sub-contracting networks and material supplies and adverse government policies; and could be addressed effectively by governmental policies.

A major area deserving the special attention of the developing countries relates to the appropriateness of machinery designs and adaptation of imported equipment to the factor proportions prevailing in the countries themselves. The absence of design alterations is perhaps related to the more general lack of research activity, and also to the policies of intensive import-substitution which may well have decreased the derived demand for adapted machinery. Thus in future strategies, emphasis should be given to the requirements for maintaining comparative advantage and producing appropriate machinery in a dynamic framework in which product design and the production of capital goods are changing - a framework in which the developing countries producing capital goods must compete in design as well as cost.

For the developing countries in Asia with relatively advanced industrial structures and a sizeable skilled labour force, the production of machinery and transport equipment may be projected as perhaps the most dynamic element in their industrial structures, having already developed very rapidly during the last decade, as can be deduced from the data provided in Table A on page 3 and Tables 7/1 - 7/11 in the Statistical Annex.

1/ World Bank Staff Working Paper No. 376, "Fostering the capital-goods sector in LDCs: A survey of evidence and requirements", March 1980.

A largely unexplored dimension of the capital goods industry is the scope for regional co-operation so that advantage may be taken of the larger-scale markets and of the stock of skills and technology available in the different countries. It is, of course, no accident that the only two industrial complementation programmes approved as yet within ASEAN are in the field of engineering industry.

Related to the development of the capital goods industry is the indigenous processing of primary products, of importance not only by enabling the developing countries to retain a higher value added, but also from the point of view of spatial dispersal of industry within the countries and the strengthening of intersectoral linkages. The processing industries are important training grounds for the countries' skilled manpower in as much as there is a significant fall-out of skills from metallurgical and metal industries.

(iii) Microelectronics

Of major importance to the potential future development of the capital goods industry in the Asian developing countries is the use of microelectronics.[1/] Although most of the technological developments underpinning the microelectronics revolution are less than a decade old they have already introduced an array of entirely new products, transformed the characteristics of existing goods (watches, cash registers, etc.), and modified production processes and labour requirements of many industries. Industries in which the new technology has been introduced, or which are considered most ripe for microelectronics-based innovations, include printing and office machinery, metals and plastics fabrication, instrumentation, electrical engineering, aircraft, shipbuilding and motor vehicles.

The implications of microelectronics technology differ among Asia's developing countries.

1/ Ref. UNIDO, "Restructuring world industry in a period of crisis - the role of innovation. An analysis of recent developments in the semiconductor industry", UNIDO/IS.285, 17 December 1981.

Of particular concern to labour-abundant, low-wage developing countries is that their comparative advantage in traditionally labour-intensive industries may be eroded in the long run by the increasing use of high-technology equipment and machinery by developed countries. The production processes in these industries - for example in textiles, garments and assembly of standard electronics products - involve the performance of low-skill, assembly-type tasks. Such tasks are, in fact, the most vulnerable to microelectronics-related innovations that considerably reduce unit-labour costs. For these countries, the selected application of microelectronic technology into specified processing, perhaps in sub-sectors where local skills are not already available or fully developed, could enhance product quality of manufactures in a consistent fashion - with the underlying goal of incorporating more labour into industrial growth.

Until the early 1970s exports of the more advanced of Asia's developing economies, such as Singapore, Hong Kong, and the Republic of Korea, consisted primarily of labour-intensive manufactures. Since then they have undergone a shift in relative factor inputs away from abundance of unskilled low-wage labour and towards the production and export of more technologically sophisticated industrial products, such as cars, ships, metal products and chemicals. In the future they may be expected to be in a position to effectively integrate, through adoption and diffusion, microelectronics-based innovations in their production processes.

An international division of labour may quite possibly develop in respect to the production of certain lines of equipment and machinery between manufacturers of machines and producers of microelectronic control systems. The control units made in a developed country would be installed into the machinery fabricated in a developing country. The growing capability of the more advanced of the developing countries over the past decade in the manufacture and export of machinery used in the food, textile, construction and other industries indicates the feasibility of such an arrangement.

Another possibility meriting further study would be the sub-contracting of software programme designing to developing countries for export to developed countries. The production of relatively unsophisticated standardized programmes in co-operation with the international computer

industry could provide opportunities to underemployed educated persons and could foster the development of a service industry for local manufacturers.

C. Structural changes and redeployment

The economic performance in several of the countries following export-oriented strategies demonstrates that export industries not sufficiently rooted in the domestic economic structure are dangerously exposed to the vagaries of world market conditions. The export efficiency of those industries which are excessively dependent on imported components has tended to diminish, because of unfavourable changes in the terms of trade.[1/]

More generally, the advent of microelectronics technology has called into question the wisdom of development strategies relying heavily on a narrowly based export-led industrialization. In coping with the added uncertainties in the field of manufactured exports due to technology-induced factor-intensity reversal in the developed countries and demands for increased protectionist policies, the Asian developing countries are giving full attention to the need of diversifing their economic structures and are actively searching for alternative development strategies based on indigenous resources and needs.

No doubt continued major structural changes will occur in the raw material resources-lacking economies of, for instance, Hong Kong, the Republic of Korea and Singapore, as they move towards knowledge-intensive industries and away from energy-intensive ones. A different situation prevails in countries with strong raw material bases, like Indonesia and Malaysia. A classification of industries into "intensive energy-based" or "raw material-based" is emerging. The location of such industries can be expected to gradually move away from the consumer centres of Japan (and the Republic of Korea) and to countries with energy and raw material resources. Such redeployment may take place on a large-scale during the coming decade and countries with absorbtive capacity and raw material endowment, such as

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1/ See "Review and appraisal of the implementation of the International Development Strategy", E/ESCAP/296, 19 February 1983.

Indonesia, may wish to format plans to facilitate such a development. Investments in that context could be made in various ways and forms, including perhaps a comprehensive approach, encompassing management, technology, capital and international outlets.

In general, it can be stated that the changing global pattern of production and trade would also promote structural adjustments on the part of Asia's developing countries, particularly for the newly industrialized and rapidly industrializing countries. Opportunities would be created for direct investments and transfer of technology from newly industrialized countries to the less developed among the developing countries. Additionally, the acceleration of the process of structural adjustment would provide a good opportunity for countries to identify more clearly their areas of comparative advantage within the global structure. The results of such assessments among the newly industrialized countries, for instance, would help other developing countries to assess the implications of impending changes in the global patterns of industrial production and trade and determine the priorities for their own industrial expansion.1/

D. Regional co-operation

Among the key strategic choices for future industrial development in south, southeast and east Asia is the sort of regional arrangements that might be aimed for. These countries, most of them having relatively limited domestic markets, would conceivably benefit greatly by gaining economies of scale through larger sub-regional or regional markets, which might in turn become steps towards producing for the world market.

The diversity among Asian countries is, of course, an important factor when seeking the reason for why so little has been achieved in organizing regional or sub-regional co-operation; with the important exception of ASEAN. However, the absence of other sub-regional groupings does not mean that international industrial co-operation between the developing Asian countries

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1/ Ref. "Report of expert group meeting on the preparations for UNCTAD VI," E/ESCAP/336 of 11 March 1983.

is non-existent. Indeed, there is very active international co-operation at the enterprise level and on a bilateral basis. Companies from the more industrially advanced of the Asian developing countries, like the Republic of Korea and India, are increasingly active in building up a south-south network of multinational operations. The establishment of a great number of international joint ventures in various industries is being furthered through the activities of bilateral "commissions", for example those between India and neighbouring countries.

It is expected that such south-south enterprise level co-operation will be intensified during the coming years as the developing Asian countries diversify and expand their manufacturing in different directions within the context of dynamic long-term comparative advantages. As a recent ILO study[1/] points out, although the know-how of most of the developing firms was originally acquired from advanced countries, the technology they transfer to their own subsidiaries is the result of adaptions and innovations made by the firms themselves as they adapted to their own home markets. For this reason, technologies transfered between developing countries are often scaled to small-volume, labour-intensive manufacturing.

As noted above, international co-operation in developing Asia is most concrete in the case of the five countries of ASEAN - Indonesia, Malaysia, the Philippines, Singapore and Thailand. They constitute the fastest growing region of the world and their economic co-operation receives considerable political support in each of the countries. Having initially concentrated efforts on the establishment of large-scale, government-sponsored, industrial ventures, the so-called "ASEAN Industrial Projects", with all ASEAN member countries participating in the equity and sharing the risks, the focus of ASEAN industrial co-operation is now shifting towards more flexible approaches. One such example is the ASEAN Industrial Complementation programmes based on the concept of co-ordination in the production of various complementary products in the five countries and giving these products preferential tariff treatment within ASEAN under the ASEAN preferential trading arrangements (PTA). Another, more recent, approach is the ASEAN

1/ Louis T. Wells, "Technology and third world multinationals", ILO, Geneva, 1982.

Industrial Joint Ventures which, having been proposed by the business community of the ASEAN countries, would provide for considerable flexibility in the establishment of ASEAN industrial ventures; that is, enterprises enjoying ASEAN preferential tariffs and support in the form of (time-limited) exclusivity for a certain product. The private sector, led by the ASEAN Chamber of Commerce and Industry (ASEAN-CCI) and a number of ASEAN-accredited "industry clubs", is expected to continue to play the major initiating role in the preparation of these schemes and concrete proposals for complementation programmes and specific projects. Another dimension of ASEAN economic co-operation which can be expected to continue to be of great importance for the region's future development is the joint approaches to the outside world. These have been systematized within a framework of so called "dialogues", covering the relations with Japan, USA, the EEC, Canada, India, Australia and New Zealand, as well as joint action in international fora regarding economic issues, such as trade issues in GATT.

Moves are under way towards consolidating economic co-operation activities between seven countries in south Asia - Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka. The disparate development levels of the seven countries - representing about a fifth of the world's population - calls for a step-by-step approach. Among the areas in which detailed assessments of potential for regional co-operation are expected to be made is scientific and technological co-operation. There is a possibility of considerable gains if selected research institutions were to serve the region or research programmes were co-ordinated in specific areas of mutual interest aiming at optimal use of natural resources. Ultimately, manufacturing units with requisite economies of scale may be set up (also in the countries with small domestic markets) on a production-sharing basis.

In general, it may be stated that the pursuit of an export-oriented strategy would be facilitated by active economic diplomacy with neighbouring developing countries. The economic relationships between countries would be strengthened if opportunities for trade were enhanced through a complementary production structure. Initial steps in this direction might include joint production efforts, joint investment ventures, or co-ordination of long-term investment strategies.

IV. SUMMARY AND CONCLUSIONS

If only one word could be used to summarize new imperatives of industrial development strategies, it would be linkages. Although the fact that interrelationships exist between production sectors and social groups is obvious, formulating and implementing effective policies to manipulate these linkages are not self-evident. The following linkages appear predominately in a review of the main policy issues and constraints: mutually reinforcing agricultural and industrial development so that growth and technical achievements in one provides incentives to the other; converging the needs and contributions of rural and urban populations; achieving growth and social equity jointly and not expecting the latter to follow necessarily from the former; building vertical channels of transferring know-how and finances, and of fostering demand and supply relationships between the small-scale and large-scale industries; balancing urgent needs for growth now with investments in future capabilities; and linking product manufacturing choices to both inherent comparative advantages in the world market and to domestic consumption needs.

And even this ambitious checklist leaves out related policies to protect the environment, provide basic infrastructure, minimize dependence on imported energy, etc. Perhaps there is full compatibility in these objectives in the long run, but many of them are contradictory, and affect various groups of society differently, in the short-run. There is a clear need for priority ranking between objectives and for the formulation of national and regional plans to outline achievable stepping stones in logical order towards them. Such determinations of objectives has to be followed by second-level choices of policies, institutions, trade regimes, monetary schemes, allocation of resources, etc. And a major consideration in both strategies and policies must be to ensure that they do not foreclose future options, particularly those of technical advances.

For the countries in the region with strong raw material bases the brightest future prospects may be found in an effective build-up and utilization of a combination of increased domestic demand and exports. It is of great importance that the export industries be firmly rooted in the

domestic economic structure. Likewise, the economic links between the export industries and other branches of the national economy, particularly between processing industries and domestic sources of raw materials and other supplies, must be strengthened. Effective linkages must be promoted between large- and small- or medium-scale industries through, for example, the establishment of industrial estates for ancillary production and sub-contracting.

The remarkable growth of the east and southeast Asian countries' economies was achieved while pursuing export-led industrialization strategies based on their comparative advantages of low labour costs, rapid absorption of know-how capabilities and technology from abroad. Advantages obtained primarily in cost-price competition have brought about a rapid expansion of manufacturing exports. However, despite continuous labour productivity gains in many industries, increases in labour costs have gradually reduced the advantageous competitive position of these rapidly advancing developing economies. Among the counter measures taken, stronger attention is being given to innovation and improving quality standards in production. Increasing the research and development content of production in these countries has been seen as an effective means of increasing competitive positions in the world market.

At the same time, attention is being directed at the relatively limited role which the industrial sector of these export-led economies has been playing in statisfying domestic intermediate demand. Input requirements for technology, basic capital goods and intermediate inputs have been met by imports. This demand structure was advantageous in a booming world economy when the possibilities for expanding industrial exports were large. In the present context of the increasingly difficult world market situation it has become most important for these countries to increase their ability to satisfy their own demand for immediate input capital and, especially, for research intensive goods, by up-grading and restructuring their science and technology institutions.

In facing the challenges of the 1980s then, emerging strategies employed by those countries which have based industrial development on export-led

growth, would include, among a wide range of policies, the following concepts:

- increasing their ability to satisfy domestic demand for intermediate, capital- and other research-intensive goods;
- improvements in quality and innovation in industrial products and processes as main elements of structural adjustment in order to meet the increasingly competitive world economic conditions;
- effective integration of newer technologies in their production, through adoption and diffusion of microelectronics-based technology and development of international sub-contracting activities in the electronics software field, etc.;
- intensified regional co-operation in industrial production marketing and R and D - particularly in order to complement national efforts;
- joint regional or subregional approaches vis-à-vis the industrialized countries and in international economic fora, such as GATT.

The internal market-oriented economies of the region - mainly those of developing south Asia - have during recent years incorporated into their strategies more outward-looking policies aimed at ensuring a solid foundation for endogenous economic development, reflected in the fact that import-substitution efforts are frequently supplemented by export-promoting measures. Nonetheless, the development efforts of these countries must focus on the domestic economy and emphasize the complementarities between the agricultural and industrial sectors as a means of stimulating endogenous economic growth.

The emerging strategies which are expected to be employed by the primarily internal market-oriented developing countries involve, inter alia, the following concepts:

- emphasis to be placed on promotion of complementarities between the agricultural and industrial sectors and the local generation of required inputs where feasible;
- increased exports to generate foreign exchange earnings to satisfy the needs, created under the import-substitution policies, for technology and capital goods and other factor inputs from abroad - including such inputs required for increasing agricultural productivity;

- utmost importance to be accorded to ways and means of increasing manufacturing capabilities by successively moving away from outdated technology and obsolescence of plant and machinery, and bringing the whole manufacturing sector into the mainstream of technological advance;

- focusing indigenous technological efforts on the adaptation and development of technology with the objective of developing indigenous R and D through which designs and processes may be developed to contemporary standards of productivity and product specifications;

- enhancement of employment and dispersal of industrial activity, through concerted efforts in promoting small-scale industry and industrial activities in non-metropolitan areas;

- further efforts towards diversification of export production and development of new export markets, including markets of Third World countries - the trading company concept being but one of the measures pursued;

- the further development of labour-intensive export industries, including such industries within EPZs, with particular attention to long-term benefits through provision of linkages with activities in the domestic economy, such as transfer of know-how and technology.

Table 1. Growth of manufacturing value added (MVA) per capita, at constant 1975 prices

(percentage)

Year	All developing countries	Of which:				Developed market economies	Centrally planned economies
		Africa	West Asia	South, south-east and east Asia	Latin America		
Average 1963-72	5.2	4.4	6.4	5.0	5.2	4.5	8.8
Average 1973-82	2.1	2.9	2.6	4.7	0.4	1.0	4.6
1973	7.4	7.0	7.7	9.1	6.6	7.8	7.5
1974	2.8	-0.6	-0.8	3.7	3.2	-2.1	9.8
1975	0.7	3.1	3.4	3.4	-1.2	-5.1	8.5
1976	5.2	-0.4	7.4	11.3	2.9	7.7	6.0
1977	3.0	3.6	4.6	6.8	0.8	4.0	6.4
1978	3.6	3.7	5.2	7.9	1.2	2.3	4.2
1979	3.9	5.1	0.6	5.4	3.2	3.2	3.2
1980	0.5	2.7	-3.5	-3.9	2.9	-3.6	2.2
1981[a/]	-2.7	3.7	2.4	2.4	-7.2	-0.5	0.9
1982[b/]	-2.2	3.4	1.7	1.7	-6.2	-3.9	1.6

Source: ID/WG.391/1, Selected Statistical Indicators. Table 7.

a/ Preliminary figures

b/ Estimates

Table 2. Share of manufacturing in GDP, in developing south, southeast and east Asia, 1970, 1975 and 1980

(in per cent)

	Share of manufacturing in GDP			
	1970 (in constant 1975 prices)	1975 (in constant 1975 prices)	1980 (in constant 1975 prices)	1980 (in current prices)
Afghanistan	10.5	10.5	10.9	...
Bangladesh	4.9	7.6	7.9	7.6
Burma	8.5	8.1	8.3	9.8
Dem. Kampuchea	12.8	11.9	10.6	...
Hong Kong	30.1	26.8	23.8	28.9
India	15.5	15.6	17.4	17.8
Indonesia	6.8	8.9	10.3	8.8
Iran	7.6	10.9	18.8	19.2
Korea, Rep. of	18.3	26.5	33.8	29.3
Lao Peoples Dem. Rep.	7.5	9.8	7.9	...
Malaysia	15.8	17.6	21.6	22.5
Nepal	...	...	...	4.3
Pakistan	17.7	16.5	17.4	16.9
Papua New Guinea	...	...	...	9.2
Philippines	23.9	24.9	26.1	25.6
Singapore	23.7	24.5	27.1	28.3
Sri Lanka	10.8	14.5	12.3	10.6
Thailand	14.5	18.3	21.1	18.7
South Asia[a/]	14.7	15.0	16.4	16.9
ASEAN[b/]	14.4	16.3	18.3	17.2

a/ Bangladesh, India, Pakistan, Sri Lanka (detailed information not available for Bhutan, Maldives and Nepal)

b/ Indonesia, Malaysia, Philippines, Singapore, Thailand

Source: UNIDO data base; information supplied by the United Nations Office of Development Research and Policy Analysis and the Statistical Office of the United Nations.

Table 3. Manufacturing value added (MVA) and MVA per capita, in developing south, southeast and east Asia, 1970, 1975 and 1980

	Manufacturing value added (MVA) (in millions US dollar)				MVA per capita (in US dollar)			
	1970 (in constant 1975 prices)	1975 (in constant 1975 prices)	1980 (in constant 1975 prices)	1980 (in current prices)	1970 (in constant 1975 prices)	1975 (in constant 1975 prices)	1980 (in constant 1975 prices)	1980 (in current prices)
Afghanistan	164.6	191.0	212.9	...	10	10	10	...
Bangladesh	421.2	731.3	984.6	965.6	6	10	11	11
Burma	222.0	242.5	324.2	503.3	8	8	9	14
Dem. Kampuchea	315.1	135.0	83.6	...	45	17	9	...
Hong Kong	1,760.1	2,760.1	3,298.6	6,076.9	446	502	681	1,255
India	11,833.3	13,830.9	18,543.2	28,511.4	21	22	27	41
Indonesia	1,397.2	2,708.1	4,476.0	6,153.6	12	20	29	41
Iran	2,565.8	5,663.7	6,765.3	15,631.5	90	173	178	410
Korea, Rep. of	2,391.5	5,450.8	10,008.2	17,394.2	76	157	264	458
Lao Peoples Dem. Rep.	21.7	31.0	25.2	...	7	9	7	...
Malaysia	1,045.3	1,638.4	3,080.6	4,839.7	100	137	226	355
Nepal	...	...	...	84.9	...	...	...	6
Pakistan	1,934.2	2,202.9	3,083.6	4,716.3	32	31	37	57
Papua New Guinea	...	...	...	238.2	...	...	...	77
Philippines	2,848.9	3,941.9	5,636.5	9,069.4	76	90	111	178
Singapore	850.6	1,386.2	2,321.8	3,112.8	410	616	957	1,283
Sri Lanka	361.5	547.5	644.7	439.8	29	40	43	30
Thailand	1,481.0	2,667.1	4,505.4	6,145.6	41	64	95	129
South Asia[a/]	14,550.1	17,312.7	23,256.1	34,633.1	21	22	26	39
ASEAN[b/]	7,623.0	12,341.8	20,020.4	29,321.1	37	53	75	110

a/ Bangladesh, India, Pakistan, Sri Lanka (detailed information not available for Bhutan, Maldives and Nepal)

b/ Indonesia, Malaysia, Philippines, Singapore, Thailand.

Source: UNIDO data base; information supplied by the United Nations Office of Development Research and Policy Analysis and the Statistical Office of the United Nations.

Table 4. Annual rates of growth of MVA in developing south, southeast and east Asia, 1971-1980 at constant 1975 prices

(in percentage)

Country	1971	1972	1973	1974	1975	1976	1977	1978	1979	1980	1971-75	1976-80
Afghanistan	-8.0	-2.3	8.9	11.2	6.7	3.2	13.3	6.2	-6.2	-4.4	6.8	1.5
Bangladesh	-46.3	64.0	15.7	63.1	4.4	5.3	10.2	5.7	3.3	6.2	34.7	6.0
Burma	3.7	0.3	-0.5	-2.7	8.4	8.7	8.3	7.0	2.0	4.1	0.7	5.1
Dem. Kampuchea	-16.8	-50.5	18.8	-22.6	13.2	-4.9	-21.2	0.0	-29.3	16.9	-13.2	-11.4
Hong Kong	10.5	12.3	10.3	-15.7	8.0	22.0	4.0	13.6	-0.6	4.9	1.7	5.5
India	2.9	5.6	5.1	1.0	1.2	13.6	3.9	12.8	-0.4	1.2	3.2	4.6
Indonesia	14.2	13.8	14.8	16.3	11.8	9.3	14.2	11.8	8.6	9.0	14.4	10.7
Iran	17.1	20.5	17.7	19.4	11.3	18.5	13.9	0.3	28.7	-31.4	17.4	2.7
Korea, Rep. of	18.9	14.0	29.2	15.7	12.5	22.6	14.4	20.7	9.8	-1.2	18.6	11.5
Lao Peoples Dem. Rep.	3.2	3.1	9.1	9.5	12.3	-10.3	-9.4	-12.7	3.6	10.5	8.6	-2.9
Malaysia	1.6	10.9	23.4	9.0	3.4	18.3	10.6	13.4	12.5	12.7	12.3	12.4
Pakistan	-3.4	10.2	3.7	0.2	2.9	0.6	9.0	2.3	11.2	12.1	3.7	8.2
Philippines	5.6	6.4	13.9	3.4	4.6	8.0	10.5	7.6	4.4	6.6	7.3	7.0
Singapore	17.8	16.7	16.6	3.5	-1.8	10.7	8.8	11.2	14.4	9.3	8.7	11.3
Sri Lanka	4.9	2.9	10.9	18.5	6.8	3.0	0.9	4.1	3.3	5.4	10.6	3.5
Thailand	18.8	14.3	10.5	8.8	10.3	15.0	18.8	8.1	10.0	3.9	10.7	9.9
South Asia[a/]	0.7	7.1	5.3	3.0	1.8	11.3	4.6	11.0	1.1	2.8	4.2	5.0
ASEAN[b/]	10.6	11.2	14.9	7.8	6.3	11.5	13.0	9.8	8.9	7.7	10.3	9.7

a/ Bangladesh, India, Pakistan, Sri Lanka (detailed information not available for Bhutan, Maldives and Nepal)

b/ Indonesia, Malaysia, Philippines, Singapore, Thailand

Source: UNIDO data base; information supplied by the United Nations Office of Development Research and Policy Analysis and the Statistical Office of the United Nations.

Table 4a. Annual real growth rates of MVA 1981 and 1982[a/] for selected developing Asian countries

(in percentage)

Country	1981	1982
Bangladesh	8.9	3.0
Burma	9.0	7.2[b/]
Korea, Republic of	6.8	...
Malaysia	4.0	3.5
Pakistan	9.9	12.1
Philippines	3.4	...
Singapore	9.9	...
Sri Lanka	5.2	9.1
Thailand	8.0	8.2

a/ Growth rates refer to the fiscal year and are assigned to the calendar year which covers the major part or second half of the fiscal year.

b/ Projected.

Source: Economic and Social Survey of Asia and the Pacific 1982, ESCAP (Tables I.11 and I.12)

Table 5. Imports according to stages of processing, value and share (current prices), for selected economies in developing south, southeast and east Asia, 1970, 1975, 1980 and/or latest year

(1000 US dollar/share in sum of categories)

		Non-processed goods imported to be processed		Processed goods imported to be further processed		Non-processed goods imported for final use		Processed goods imported for final use	
		'000 US $	%	'000 US $	%	'000 US $	%	'000 US $	%
Bangladesh	1979	311,822	20.3	244,270	15.9	19,937	1.3	961,029	62.5
Burma	1970	6,461	3.8	52,338	31.2	3,185	1.9	105,930	63.1
	1975	3,382	1.4	62,080	24.9	13,515	5.4	170,320	68.3
	1971	1,683	0.6	71,250	23.9	831	0.3	224,480	75.3
Hong Kong	1970	463,543	16.1	664,300	23.1	206,207	7.2	1,543,718	53.6
	1975	1,087,005	16.2	1,396,982	20.8	480,402	7.1	3,764,179	55.9
	1980	2,362,310	10.7	4,390,173	20.0	1,082,410	4.9	14,168,873	64.4
	1981	2,156,431	8.7	4,865,833	19.7	1,171,670	4.8	16,451,545	66.8
India	1970	533,557	27.3	345,252	17.6	49,573	2.5	1,028,590	52.6
	1975	1,762,281	34.7	491,814	9.7	56,963	1.1	2,766,414	54.5
	1979	960,387	13.9	1,465,831	21.2	154,950	2.2	4,337,050	62.7
Indonesia	1969	65,428	8.6	170,942	22.4	6,049	0.8	520,252	68.2
	1975	211,488	4.4	570,651	12.0	96,601	2.0	3,890,976	81.6
	1980	1,496,654	13.8	1,742,624	16.1	88,822	0.8	7,506,294	69.3
	1981	1,228,166	9.4	2,078,210	16.0	151,649	1.2	9,547,780	73.4
Korea, Rep. of	1970	692,962	34.9	451,209	22.8	4,531	0.2	834,561	42.1
	1975	2,978,226	41.0	1,414,657	19.5	61,278	0.8	2,816,843	38.7
	1980	10,084,852	45.4	3,922,928	17.6	541,441	2.4	7,678,789	34.5
Malaysia	1970	280,897	20.1	159,396	11.4	48,773	3.5	911,539	65.1
	1975	561,879	15.9	473,459	13.4	93,139	2.6	2,396,165	68.0
	1980	1,559,439	14.5	1,271,604	11.9	203,147	1.9	7,696,165	71.7
Pakistan	1970	152,254	13.6	191,905	17.1	23,196	2.1	752,484	67.2
	1975	375,982	20.3	288,817	15.6	86,413	4.7	1,104,424	59.5
	1980	282,898	6.6	669,166	15.5	149,393	3.5	3,212,601	74.5
	1981	393,661	9.6	784,666	19.1	215,750	5.3	2,713,359	66.1
Philippines	1970	203,273	16.9	234,118	19.5	5,252	0.4	758,365	63.1
	1975	992,508	26.4	556,373	14.8	17,511	0.5	2,193,189	58.3
	1980	2,421,217	29.2	1,134,732	13.7	44,034	0.5	4,694,331	56.6
Singapore	1970	455,494	18.6	398,743	16.3	119,231	4.9	1,476,921	60.3
	1975	2,145,313	26.4	805,238	9.9	219,802	2.7	4,964,629	610
	1980	7,474,064	31.2	2,612,265	10.9	443,320	1.8	13,463,956	56.1
	1981	9,809,302	35.6	2,472,424	9.0	529,546	1.9	14,751,449	53.5
Sri Lanka	1970	12,085	3.1	95,987	24.8	34,410	8.9	244,117	63.1
	1975	157,092	21.2	193,713	26.1	8,169	1.1	382,328	51.6
	1980	549,041	27.0	328,884	16.2	42,450	2.1	1,114,742	54.8
	1981	571,066	31.7	243,889	13.5	16,405	0.9	972,367	53.9
Thailand	1970	81,804	6.3	235,070	18.2	4,102	0.3	972,440	75.2
	1975	704,229	21.5	538,911	16.4	7,645	0.2	2,028,630	61.9
	1980	2,382,221	25.3	1,350,581	14.3	60,391	0.6	5,638,548	59.8
	1981	2,720,288	27.1	1,458,683	14.5	89,837	0.9	5,756,969	57.4

Source: UNIDO based on information supplied by United Nations Statistical Office.

Table 6. Exports according to stages of processing, value and share (curren prices), for selected economies in developing south, southeast and east Asia, 1970, 1975, 1980 and/or lates year

(1000 US dollar/share in sum of categories)

		Non-processed goods exported to be processed		Processed goods exported to be further processed		Non-processed goods exported for final use		Processed goods exported for final use	
		'000 US $	%	'000 US $	%	'000 US $	%	'000 US $	%
Bangladesh	1979	142,391	21.5	275,169	41.6	81,012	12.2	163,062	24.6
Burma	1970	25,380	23.6	21,053	19.6	7,485	7.0	53,515	49.8
	1975	41,527	26.3	29,121	18.4	10,976	6.9	76,425	48.4
	1976	51,258	26.6	22,686	11.8	12,179	6.3	106,475	55.3
Hong Kong	1970	46,729	2.3	177,131	8.7	14,926	0.7	1,793,355	88.2
	1975	67,537	1.5	380,223	8.3	37,315	0.8	4,111,237	89.4
	1980	262,520	1.9	838,517	6.1	69,790	0.5	12,497,173	91.4
	1981	213,412	1.5	890,593	6.2	76,486	0.6	13,123,430	9.7
India	1970	469,118	23.6	601,547	30.2	386,795	19.4	533,297	26.8
	1975	890,002	20.5	1,065,826	24.6	670,976	15.5	1,712,355	39.5
	1979	1,683,789	24.2	1,536,333	22.1	1,083,454	15.6	2,658,228	38.2
Indonesia	1970	902,658	85.6	69,518	6.6	33,523	3.2	49,040	4.6
	1975	6,134,520	86.0	330,453	4.6	171,774	2.4	493,453	6.9
	1980	15,801,868	72.1	1,165,056	5.3	3,295,434	15.0	1,646,531	7.5
	1981	15,660,705	70.4	963,065	4.3	3,763,430	16.9	1,872,984	8.4
Korea, Rep. of	1970	89,215	10.8	120,693	14.5	43,257	5.2	576,478	69.5
	1975	176,453	3.5	740,527	14.6	377,458	7.4	3,776,163	74.5
	1980	333,366	1.9	2,762,366	15.8	715,030	4.1	13,623,009	78.1
Malaysia	1970	899,358	53.5	533,625	31.7	61,661	3.7	187,487	11.1
	1975	1,484,376	38.7	1,473,120	38.5	127,266	3.3	746,285	19.5
	1980	6,685,248	51.7	3,586,822	27.7	178,175	1.4	2,487,635	19.2
Nepal	1975	8,472	45.7	2,785	15.0	3,096	16.7	4,201	22.6
	1980	50,307	53.7	17,374	18.5	12,058	12.9	13,934	14.9
Pakistan	1970	219,086	32.4	268,032	39.7	23,664	3.5	164,534	24.4
	1975	209,563	20.9	294,108	29.3	31,189	3.1	468,097	46.7
	1980	561,440	22.3	647,016	25.7	101,100	4.0	1,212,409	48.1
	1981	402,557	14.9	739,707	27.3	109,833	4.1	1,457,381	53.8
Philippines	1970	577,299	54.5	334,533	31.6	30,351	2.9	117,500	11.1
	1975	657,769	29.7	963,256	43.5	124,050	5.6	470,402	21.2
	1980	1,325,385	23.1	1,693,066	29.4	360,711	6.3	2,369,944	41.2
Singapore	1970	476,151	32.9	167,573	11.6	64,989	4.5	739,586	51.1
	1975	733,269	14.6	447,637	8.9	156,365	3.1	3,685,626	73.4
	1980	2,147,515	11.1	2,656,414	13.7	383,234	2.0	14,183,127	73.2
	1981	1,816,134	8.7	2,707,627	12.9	444,703	2.1	15,994,853	76.3
Sri Lanka	1970	92,717	28.0	21,964	6.6	214,372	64.6	2,543	0.8
	1975	145,562	26.1	39,724	7.1	316,339	56.7	56,123	10.1
	1980	234,482	22.5	38,624	3.7	466,963	44.8	302,790	29.0
	1981	215,246	21.4	37,252	3.7	440,718	43.7	314,178	31.2
Thailand	1970	359,575	52.5	119,543	17.4	34,627	5.1	171,414	25.0
	1975	880,526	40.7	553,333	25.6	126,688	5.9	601,627	27.8
	1980	2,208,272	34.9	1,252,607	19.8	369,497	5.8	2,491,003	39.4
	1981	2,173,175	32.0	1,365,279	20.1	443,613	6.5	2,817,159	41.4

Source: UNIDO based on information supplied by United Nations Statistical Office.

Table 7/1. Bangladesh. Key data on manufacturing, by 3-digit ISIC-groups, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ at constant 1975 prices		No. of persons engaged	
		197	1981	1975	1979
311	Food products	77,200	137,416	35,390	36,500
313	Beverages	3,600	5,832	630	800
314	Tobacco	83,700	118,854	5,540	5,470
321	Textiles	263,600	345,316	206,810	269,750
322	Wearing apparel, except footwear	400	...	930	490
323	Leather products	5,300	...	2,840	2,060
324	Footwear, except rubber or plastic	1,800	...	1,030	840
331	Wood products, except furniture	2,500	...	440	1,350
332	Furniture, except metal	4,200	...	860	1,090
341	Paper and prouducts	9,100	13,104	7,740	7,920
342	Printing and publishing	3,700	...	2,950	4,620
351	Industrial chemicals	9,400	21,432	7,250	5,300
352	Other chemicals	64,700	126,165	26,600	23,750
353	Petroleum refineries	900	1,116	470	450
355	Rubber products	1,100	473	2,790	2,230
356	Plastic products	300	...	290	640
361	Pottery, china, earthenware	1,900	...	920	1,270
362	Glass and products	2,600	4,030	2,730	1,800
369	Other non-metallic mineral products	5,000	11,350	2,360	2,730
371	Iron and steel	29,800	47,084	8,450	8,660
381	Fabricated metal products	8,000	...	7,380	8,280
382	Machinery, except electrical	3,800	18,620	3,340	3,700
383	Machinery electric	3,400	8,330	1,910	5,350
384	Transport equipment	3,400	5,236	4,980	3,720
385	Professional and scientific equipment	1,700	...	2,450	830
390	Other manufactured products	2,500	2,200	...	...
300	Total manufacturing	593,600	...	337,080	399,600

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office New York, with estimates by the UNIDO Secretariat.

Table 7/2. India. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ at constant 1975 prices			No. of persons engaged (in 1000)		
		1970	1975	1981	1970	1975	1978
311	Food products	1,046,596	1,113,400	1,491,956	666	1,045	1,198
313	Beverages	79,905	76,100	134,697	19	26	31
314	Tobacco	335,502	307,800	455,544	121	198	361
321	Textiles	1,768,600	1,768,600	2,033,890	1,356	1,550	1,624
322	Wearing apparel, except footwear	766,379	703,100	660,914	19	29	49
323	Leather products	52,822	68,600	54,194	27	23	35
324	Footwear, except rubber or plastic	137,984	140,800	(1979) 119,680	5	7	28
331	Wood products, except furniture	322,938	489,300	406,119	60	65	70
332	Furniture, except metal	65,934	99,900	82,917	15	12	8
341	Paper and products	245,017	275,300	374,408	89	98	107
342	Printing and publishing	210,098	244,300	(1978) 239,414	157	136	151
351	Industrial chemicals	392,304	594,400	1,016,424	112	148	165
352	Other chemicals	682,650	758,500	1,114,995	166	210	262
353	Petroleum refineries	142,236	131,700	(1979) 190,965	11	9	10
354	Misc. petroleum and coal products	26,314	72,600	(1979) 71,874	9	19	30
355	Rubber products	162,977	206,300	255,812	70	79	83
356	Plastic products	31,200	62,400	...	38	30	21
361	Pottery, china, earthernware	105,798	137,400	104,424	26	22	28
362	Glass and products	60,667	58,900	96,596	51	56	57
369	Other non-metallic mineral products	310,171	373,700	538,128	179	213	253
371	Iron and steel	724,640	905,800	1,132,250	357	446	500
372	Non-ferrous metals	149,408	133,400	186,760	40	47	49
381	Fabricated metal products	481,980	554,000	664,800	172	175	184
382	Machinery, except electrical	682,344	842,400	1,238,328	303	342	384
383	Machinery electric	547,200	684,000	1,026,000	217	261	285
384	Transport equipment	614,637	660,900	885,606	386	356	392
385	Professional and scientific equipment	24,035	43,700	(1979) 73,853	30	30	33
390	Other manufactured products	544,552	633,200	...	45	30	29
300	Total manufacturing	10,716,888	12,140,500	...	4,746	5,662	6,432

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office New York, with estimates by the UNIDO Secretariat.

Table 7/3. Indonesia. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ at constant 1975 prices			No. of persons engaged		
		1970	1975	1981	1970	1975	1979
311	Food products	307,119	445,100	1,028,181	270,600	143,600	145,300
313	Beverages	18,458	43,900	59,704	5,200	6,300	6,200
314	Tobacco	146,160	243,600	414,120	173,400	132,300	152,600
321	Textiles	111,636	265,800	348,198	165,700	228,100	208,700
322	Wearing apparel, except footwear	1,537	2,900	...	4,900	4,000	7,900
323	Leather products	1,219	5,300	...	2,000	2,900	2,600
324	Footwear, except rubber or plastic	18,286	44,600	54,858	3,700	5,800	6,000
331	Wood products, except furniture	45,041	61,700	289,990	10,300	33,400	44,400
332	Furniture, except metal	2,835	6,300	...	4,300	4,800	5,100
341	Paper and products	9,472	29,600	44,992	4,700	8,100	10,200
342	Printing and publishing	12,996	34,200	...	15,100	17,800	18,100
351	Industrial chemicals	71,166	122,700	478,530	5,400	9,200	12,700
352	Other chemicals	70,532	91,600	147,476	22,000	29,200	38,100
353	Petroleum refineries	621,554	615,400	1,273,878	...	...	...
355	Rubber products	14,628	31,800	95,718	115,600	9,400	34,000
356	Plastic products	3,168	19,800	...	6,400	14,400	16,500
361	Pottery, china, earthernware	2,312	3,400	...	800	2,000	5,300
362	Glass and products	4,662	11,100	28,527	3,200	6,500	8,600
369	Other non-metallic mineral products	31,356	80,400	314,364	15,900	24,400	28,200
371	Iron and steel	369	4,100	51,168	0	2,900	4,600
381	Fabricated metal products	20,691	62,700	117,876	16,700	22,300	35,500
382	Machinery, except electrical	8,880	29,600	...	4,800	8,800	11,000
383	Machinery electric	14,715	54,500	175,490	3,500	10,400	28,200
384	Transport equipment	40,608	75,200	130,848	7,100	19,300	27,100
385	Professional and scientific equipment	511	700	...	0	400	800
390	Other manufactured products	2,993	4,100	...	7,600	4,500	5,900
300	Total manufacturing	1,582,884	2,390,100	...	868,900	750,800	863,600

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office New York, with estimates by the UNIDO Secretariat.

Table 7/4. Hong Kong. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ (at constant 1975 prices)			No. of persons engaged		
		1970	1975	1976	1970	1975	1979
311	Food products	36,108	70,800	87,084	11,100	14,300	16,600
313	Beverages	28,182	46,200	63,294	2,610	2,700	3,400
314	Tobacco	20,340	45,200	67,348	1,000	800	800
321	Textiles	437,070	514,200	581,046	127,500	112,900	100,800
322	Wearing apparel, except footwear	335,988	658,800	955,260	111,000	239,000	277,300
323	Leather products	3,050	12,200	15,982	760	2,500	2,600
324	Footwear, except rubber or plastic	11,468	18,800	24,440	3,900	4,300	6,100
331	Wood products, except furniture	25,555	26,900	31,204	6,100	7,600	8,300
332	Furniture, except metal	18,285	26,500	31,005	3,600	7,500	9,400
341	Paper and products	21,846	33,100	38,727	6,300	7,400	11,200
342	Printing and publishing	74,724	95,800	111,128	18,500	19,800	25,100
351	Industrial chemicals	6,972	8,300	12,035	700	600	2,500
352	Other chemicals	25,500	37,500	42,750	3,670	4,600	5,400
353	Petroleum refineries	0	0	0	10	10	10
354	Misc. petroleum and coal products	0	0	0	0	10	10
355	Rubber products	10,300	20,600	21,424	12,000	6,100	5,300
356	Plastic products	185,571	234,900	253,692	71,000	63,700	87,900
361	Pottery, china, earthernware	988	1,900	2,489	200	500	700
362	Glass and products	7,670	5,900	5,605	1,970	1,800	2,200
369	Other non-metallic mineral products	8,175	10,900	14,497	950	1,000	1,900
371	Iron and steel	18,336	19,100	21,774	2,000	2,000	2,700
372	Non-ferrous metals	5,070	13,000	16,640	880	1,100	1,500
381	Fabricated metal products	132,940	195,500	254,150	46,700	57,300	84,800
382	Machinery, except electrical	29,106	59,400	89,694	7,400	11,900	13,600
383	Machinery electric	195,747	275,700	77,709	48,800	66,400	117,700
384	Transport equipment	67,488	88,800	102,120	13,500	11,100	14,100
385	Professional and scientific equipment	18,810	62,700	99,693	7,200	13,200	39,300
390	Other manufactured products	78,621	107,700	146,472	39,800	18,600	30,500
300	Total manufacturing	1,803,910	2,690,400	3,467,262	549,150	678,720	870,820

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office New York, with estimates by the UNIDO Secretariat.

Table 7/5. Republic of Korea. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US dollar (at constant 1975 prices)			No. of persons engaged		
		1970	1975	1980	1970	1975	1980
311	Food products	190,355	346,100	827,179	71,500	103,700	139,200
313	Beverages	89,600	160,000	337,600	28,300	25,700	28,200
314	Tobacco	145,800	243,000	376,650	11,000	15,900	12,900
321	Textiles	289,370	761,500	1,523,000	203,900	318,700	400,100
322	Wearing apparel, except footwear	30,900	206,000	397,580	48,700	148,700	188,800
323	Leather products	1,404	70,200	115,830	3,300	19,500	23,800
324	Footwear, except rubber or plastic	3,887	16,900	31,603	4,100	11,000	22,000
331	Wood products, except furniture	73,836	117,200	132,436	34,900	40,700	57,200
332	Furniture, except metal	11,036	12,400	29,884	8,000	9,300	16,300
341	Paper and products	38,048	92,800	202,304	18,400	30,300	46,100
342	Printing and publishing	72,306	92,700	177,057	28,900	37,600	44,200
351	Industrial chemicals	135,813	266,300	551,241	23,200	33,900	40,600
352	Other chemicals	104,208	217,100	523,211	25,800	41,600	49,400
353	Petroleum refineries	104,346	158,100	241,893	3,200	4,100	3,600
354	Misc. petroleum and coal products	25,164	46,600	106,248	11,800	12,700	12,300
355	Rubber products	48,384	115,200	314,496	27,100	64,500	96,300
356	Plastic products	23,912	42,700	98,210	8,800	24,100	52,300
361	Pottery, china, earthenware	10,108	7,600	27,816	6,500	6,900	15,100
362	Glass and products	29,640	45,600	83,904	8,700	11,900	19,500
369	Other non-metallic mineral products	117,920	214,400	383,776	32,500	39,800	64,100
371	Iron and steel	44,400	185,000	575,350	26,400	36,800	73,200
372	Non-ferrous metals	14,508	37,200	132,060	4,800	10,400	16,200
381	Fabricated metal products	26,592	110,800	304,700	33,700	51,000	96,700
382	Machinery, except electrical	35,190	103,500	197,685	25,400	46,500	96,900
383	Machinery electric	46,564	332,600	1,021,082	38,900	126,100	248,400
384	Transport equipment	33,570	186,500	374,865	36,200	51,200	119,300
385	Professional and scientific equipment	9,477	35,100	104,949	5,500	16,800	29,300
390	Other manufactured products	48,048	92,400	119,196	47,600	56,700	73,600
300	Total manufacturing	1,804,386	4,315,500	9,311,805	827,100	1,396,100	2,085,600

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office, New York, with estimates by the UNIDO Secretariat.

Table 7/6. Malaysia, West. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ (at constant 1975 prices)			No. of persons engaged		
		1970	1975	1980	1970	1975	1978
311	Food products	186,575	219,500	298,520	19,470	36,984	45,100
313	Beverages	19,241	27,100	55,555	2,790	3,407	4,600
314	Tobacco	34,488	47,900	59,396	4,180	5,781	6,000
321	Textiles	35,616	67,200	118,272	8,680	30,555	36,100
322	Wearing apparel, except footwear	8,215	15,500	27,280	4,380	10,933	14,900
323	Leather products	780	1,200	...	530	467	800
324	Footwear, except rubber or plastic	2,240	2,800	(1979) 2,744	830	1,602	1,600
331	Wood products, except furniture	135,756	167,600	(1979) 226,260	26,540	37,474	47,000
332	Furniture, except metal	8,910	11,000	14,850	2,120	4,483	7,600
341	Paper and products	8,004	11,600	24,824	1,900	3,544	4,800
342	Printing and publishing	54,636	62,800		11,390	13,408	16,000
351	Industrial chemicals	24,969	28,700	(1979) 41,328	1,570	3,355	3,700
352	Other chemicals	29,232	40,600	(1979) 63,742	5,550	6,604	8,600
353	Petroleum refineries	23,000	25,000	(1979) 28,750	420	518	500
354	Misc. petroleum and coal products	1,445	1,700	2,788	50	166	100
355	Rubber products	113,696	149,600	185,504	8,500	28,076	30,700
356	Plastic products	10,290	21,000	...	4,200	7,009	11,500
361	Pottery, china, earthernware	2,590	3,500	6,055	280	570	1,800
362	Glass and products	4,588	6,200	10,726	790	1,599	2,100
369	Other non-metallic mineral products	40,034	54,100	93,593	7,330	10,908	13,100
371	Iron and steel	20,460	34,100	(1979) 47,058	3,000	6,751	8,000
372	Non-ferrous metals	3,634	4,600	(1979) 7,314	320	779	1,200
381	Fabricated metal products	27,510	39,300	68,382	8,770	13,203	16,900
382	Machinery, except electrical	23,520	33,600	58,464	7,090	9,558	11,200
383	Machinery electric	75,360	125,600	213,520	3,210	33,112	60,500
384	Transport equipment	20,394	30,900	63,963	4,820	10,807	12,800
385	Professional and scientific equipment	1,302	6,200	11,532	...	948	3,100
390	Other manufactured products	1,029	4,900	9,114	...	2,820	3,900
300	Total manufacturing	917,514	1,243,800	1,548,598	153,240	285,455	374,200

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office, New York, with estimates by the UNIDO Secretariat.

Table 7/7. Pakistan. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest years

ISIC	ISIC - description	MVA in 1000 US $ (at constant 1975 prices)			No. of persons engaged	
		1970	1975	1976	1970	1976
311	Food products	496,080	413,400	496,080	35,150	45,230
313	Beverages	15,045	17,700	18,585	1,780	3,020
314	Tobacco	175,711	211,700	215,934	10,660	7,570
321	Textiles	526,440	428,000	368,080	210,077	230,368
322	Wearing apparel, except footwear	480	3,200	3,136	730	970
323	Leather products	17,480	19,000	13,300	5,290	13,130
324	Footwear, except rubber or plastic	624	600	360	1,090	1,350
331	Wood products, except furniture	1,088	3,400	3,502	940	1,320
332	Furniture, except metal	1,485	2,700	2,322	1,480	1,000
341	Paper and products	20,466	37,900	37,900	6,300	8,460
342	Printing and publishing	22,220	20,200	20,200	8,840	6,300
351	Industrial chemicals	82,348	121,100	125,944	6,590	11,400
352	Other chemicals	86,304	92,800	93,728	14,700	40,596
353	Petroleum refineries	53,734	40,100	38,496	2,210	1,746
354	Misc. petroleum and coal products	28,471	40,100	37,694	130	125
355	Rubber products	14,404	22,600	20,340	7,500	9,900
356	Plastic products	1,500	2,500		690	1,150
361	Pottery, china, earthenware	2,023	1,700	1,496	1,770	1,380
362	Glass and products	1,566	54,400	4,590	3,430	2,460
369	Other non-metallic mineral products	55,278	66,600	67,266	11,680	27,120
371	Iron and steel	26,448	45,600	39,672	13,510	18,850
372	Non-ferrous metals	240	1,200	1,116	250	480
381	Fabricated metal products	19,998	30,300	26,361	18,090	12,120
382	Machinery, except electrical	16,512	51,600	55,212	12,790	15,200
383	Machinery electric	38,874	62,700	56,430	16,200	16,000
384	Transport equipment	20,251	26,300	27,352	17,240	21,540
385	Professional and scientific equipment	4,050	8,100	7,614	5,142	5,000
390	Other manufactured products	5,680	8,000	7,520	4,101	2,815
300	Total manufacturing	1,734,860	1,784,500	1,790,230	418,360	506,600

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office, New York, with estimates by the UNIDO Secretariat.

Table 7/8. Philippines. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ (at constant 1975 prices)			No. of persons engaged		
		1970	1975	1981	1970	1975	1977
311	Food products	712,264	901,600	1,478,624	79,400	98,500	139,800
313	Beverages	86,760	120,500	161,470	15,100	27,800	23,700
314	Tobacco	95,592	113,800	119,490	22,600	20,300	20,900
321	Textiles	168,981	213,900	297,321	52,300	71,900	92,700
322	Wearing apparel, except footwear	71,676	108,600	170,502	24,785	32,100	83,900
323	Leather products	7,748	5,200	6,864	1,700	2,200	2,600
324	Footwear, except rubber or plastic	924	1,400	2,198	4,915	3,500	7,500
331	Wood products, except furniture	123,120	108,000	146,880	38,400	43,200	42,400
332	Furniture, except metal	5,915	16,900	18,083	6,400	10,600	16,300
341	Paper and products	126,075	102,500	192,700	8,800	10,700	15,000
342	Printing and publishing	18,144	67,200	68,544	15,500	12,200	16,300
351	Industrial chemicals	59,020	113,500	101,015	6,193	7,800	9,400
352	Other chemicals	133,328	256,400	228,196	16,507	20,100	23,300
353	Petroleum refineries	194,735	229,100	(1979) 245,137	1,000	1,600	1,100
354	Misc. petroleum and coal products	5,130	1,900	2,527	500	100	300
355	Rubber products	46,184	50,200	43,172	8,600	9,500	11,300
360	Plastic products	30,555	67,900	...	6,400	14,700	19,200
361	Pottery, china, earthenware	8,449	7,100	11,005	400	2,300	3,200
362	Glass and products	44,030	37,000	57,350	7,300	6,000	7,200
369	Other non-metallic mineral products	92,106	77,400	119,970	10,300	13,300	19,000
371	Iron and steel	86,520	144,200	(1978) 160,062	9,100	8,700	12,000
372	Non-ferrous metals	16,902	31,300	...	1,800	1,300	2,400
381	Fabricated metal products	71,961	86,700	104,907	16,000	22,100	23,600
382	Machinery, except electrical	27,648	38,400	(1978) 61,824	6,500	15,800	15,900
383	Machinery electric	93,357	94,300	194,258	13,300	21,600	34,100
384	Transport equipment	111,738	169,300	208,239	12,700	19,500	25,000
385	Professional and scientific equipment	1,953	6,300	...	500	1,300	1,300
390	Other manufactured products	22,632	27,600	(1978) 27,048	2,000	6,700	6,400
300	Total manufacturing	2,463,447	3,198,200	...	389,000	505,400	675,800

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office, New York, with estimates by the UNIDO Secretariat.

Table 7/9. Singapore. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ (at constant 1975 prices)			No. of persons engaged		
		1970	1975	1981	1970	1975	1980
311	Food products	64,092	58,800	84,084	8,690	8,380	9,720
313	Beverages	15,566	18,100	29,865	2,330	2,640	2,650
314	Tobacco	9,632	11,200	10,976	1,040	1,290	1,270
321	Textiles	18,000	30,000	32,100	7,030	11,350	9,670
322	Wearing apparel, except footwear	15,824	34,400	39,904	9,710	17,610	26,850
323	Leather products	1,905	1,500	1,320	670	810	1,200
324	Footwear, except rubber or plastic	4,920	4,100	2,747	1,950	1,860	1,460
331	Wood products, except furniture	28,587	22,900	17,862	8,970	9,280	10,260
332	Furniture, except metal	7,110	7,900	23,858	1,740	2,570	6,050
341	Paper and products	5,328	11,100	19,647	2,470	3,290	4,250
342	Printing and publishing	44,528	50,600	98,670	6,780	8,260	11,860
351	Industrial chemicals	7,852	15,100	28,539	810	1,440	2,140
352	Other chemicals	15,878	46,700	84,994	3,020	3,530	4,270
353	Petroleum refineries	231,441	224,700	379,743	2,200	3,330	3,340
355	Rubber products	22,288	19,900	23,482	6,450	4,380	4,050
356	Plastic products	4,428	12,300	18,081	2,130	4,870	9,150
361	Pottery, china, earthenware	850	500	995	920	670	950
362	Glass and products	5,950	3,500	6,965	860	...	...
369	Other non-metallic mineral products	27,268	40,100	55,739	3,020	4,260	3,680
371	Iron and steel	13,923	22,100	36,680	1,060	1,390	1,860
372	Non-ferrous metals	6,510	4,200	6,300	410	440	460
381	Fabricated metal products	59,490	66,100	92,540	8,550	10,790	17,470
382	Machinery, except electrical	29,727	110,100	226,806	3,700	13,520	20,100
383	Machinery electric	57,784	186,400	685,952	13,560	34,540	87,620
384	Transport equipment	400,980	229,500	472,770	16,120	30,330	27,280
385	Professional and scientific equipment	18,872	33,700	37,744	880	6,940	10,450
390	Other manufactured products	9,240	16,500	18,480	7,940	4,360	7,040
300	Total manufacturing	822,973	1,282,000	2,536,849	123,010	192,130	285,100

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office, New York, with estimates by the UNIDO Secretariat.

Table 7/10 Sri Lanka. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ at constant 1975 prices			No. of persons engaged		
		1970	1975	1979	1970	1975	1979
311	Food products	67,050	74,500	(1978) 88,655	11,986	13,096	22,301
313	Beverages	13,932	12,900	26,316	2,233	2,243	5,394
314	Tobacco	73,060	112,400	162,980	1,611	2,327	3,620
321	Textiles	32,240	62,000	50,840	14,939	25,797	46,764
322	Wearing apparel, except footwear	825	1,100	1,331	9,453	8,934	15,140
323	Leather products	2,760	3,000	6,570	1,341	1,794	1,248
324	Footwear, except rubber or plastic	3,825	5,100	6,171	2,425	1,968	1,804
331	Wood products, except furniture	16,403	34,900	11,517	1,182	4,762	5,699
332	Furniture, except metal	2,666	3,100	...	394	425	2,097
341	Paper and products	4,664	10,600	12,508	4,907	5,598	7,984
342	Printing and publishing	5,076	1,800	1,116	...	...	...
351	Industrial chemicals	670	1,000	2,000	642	802	769
352	Other chemicals	9,200	10,000	17,800	6,935	7,226	4,469
353	Petroleum refineries	18,685	18,500	17,945	476	621	4,729
354	Misc. petroleum and coal products	930	1,000	...	431	365	291
355	Rubber products	1,428	3,400	6,222	4,361	5,591	4,620
356	Plastic products	1,953	2,100	...	2,450	1,692	1,543
361	Pottery, china, earthenware	336	300	723	1,033	3,291	3,921
362	Glass and products	3,094	2,600	...	1,157	1,895	934
369	Other non-metallic mineral products	30,128	26,900	64,829	8,480	8,270	12,411
371	Iron and steel	6,880	4,300	5,074	1,187	1,451	1,726
372	Non-ferrous metals	1,280	800	944	511	789	1,444
381	Fabricated metal products	7,700	7,000	(1978) 9,100	6,572	6,559	4,009
382	Machinery, except electrical	10,575	7,500	...	7,184	7,784	1,548
383	Machinery electric	14,535	17,100	...	2,850	4,279	2,792
384	Transport equipment	1,968	4,100	...	1,945	5,598	1,646
385	Professional and scientific equipment	18,905	19,900	...	768	1,116	491
390	Other manufactured products	23,180	24,400	50,752	703	767	1,246
300	Total manufacturing	373,948	472,300	...	98,156	125,040	160,640

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office, New York, with estimates by the UNIDO Secretariat.

Table 7/11. Thailand. Key data on manufacturing by 3-digit ISIC-groups, 1970, 1975 and latest year

ISIC	ISIC - description	MVA in 1000 US $ (at constant 1975 prices)			No. of persons engaged
		1970	1975	1979	1970
311	Food products	468,424	532,300	553,592	31,280
313	Beverages	105,315	178,500	453,390	7,430
314	Tobacco	119,748	176,100	209,559	14,940
321	Textiles	128,037	261,300	(1978) 499,083	40,360
322	Wearing apparel, except footwear	58,947	120,300	(1978) 229,773	1,380
323	Leather products	6,732	10,200	...	880
324	Footwear, except rubber or plastic	14,644	52,300	...	90
331	Wood products, except furniture	55,042	75,400	83,694	19,020
332	Furniture, except metal	21,827	29,900	33,189	960
341	Paper and products	6,213	10,900	11,445	2,500
342	Printing and publishing	38,190	67,000	70,350	6,600
351	Industrial chemicals	1,428	2,100	2,688	1,110
352	Other chemicals	41,499	78,300	111,186	9,900
353	Petroleum refineries	54,927	107,700	130,317	...
354	Misc. petroleum and coal products	54,978	107,800	130,438	...
355	Rubber products	14,472	21,600	32,400	10,600
356	Plastic products	16,648	21,600	...	150
361	Pottery, china, earthenware	7,220	9,500	...	3,030
362	Glass and products	11,932	15,700	...	3,570
369	Other non-metallic mineral products	50,028	75,800	100,056	9,540
371	Iron and steel	8,460	23,500	35,720	2,990
372	Non-ferrous metals	22,044	16,700	33,233	730
381	Fabricated metal products	25,773	36,300	...	6,920
382	Machinery, except electrical	14,756	21,700	...	3,590
383	Machinery electric	4,152	17,300	...	4,350
384	Transport equipment	69,476	157,900	(1978) 227,376	...
385	Professional and scientific equipment	7,216	8,200	...	3,400
390	Other manufactured products	33,616	38,200	...	...
300	Total manufacturing	1,461,944	2,274,100	...	193,900

Source: UNIDO Data Base; Information supplied by the United Nations Statistical Office, New York, with estimates by the UNIDO Secretariat.